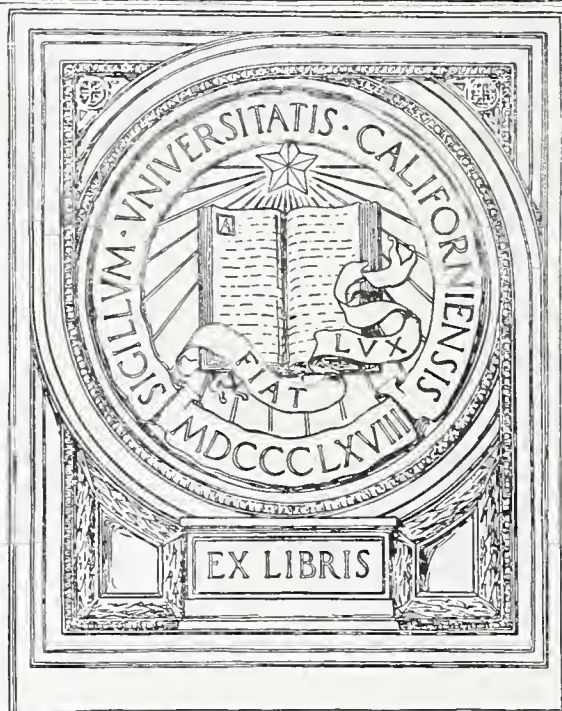



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THE
JOURNAL
OF THE
*L*Arkansas MEDICAL
SOCIETY

June, 1962

Vol. 59 No. 1

FORT SMITH, ARKANSAS

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REFERENCES: (1) Roseman, E.: *Neurology* 11:912, 1961. (2) Bray, P. F.: *Pediatrics* 23:151, 1959. (3) Chao, D. H.; Druckman, R., & Kellaway, P.: *Convulsive Disorders of Children*, Philadelphia, W. B. Saunders Company, 1958, p. 120. (4) Crawley, J. W.: *M. Clin. North America* 42:317, 1958. (5) Livingston, S.: *The Diagnosis and Treatment of Convulsive Disorders in Children*, Springfield, Ill., Charles C Thomas, 1954, p. 190. (6) *Ibid.*: *Postgrad. Med.* 20:584, 1956. (7) Merritt, H. H.: *Brit. M. J.* 1:666, 1958. (8) Carter, C. H.: *Arch. Neurol. & Psychiat.* 79:136, 1958. (9) Thomas, M. H., in Green, J. R., & Steelman, H. F.: *Epileptic Seizures*, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (10) Goodman, L. S., & Gilman, A.: *The Pharmacological Basis of Therapeutics*, ed. 2, New York, The Macmillan Company, 1955, p. 187.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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WOMAN'S AUXILIARY

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H. KING WADE, JR., M.D.
Hot Springs
PRESIDENT
ARKANSAS MEDICAL SOCIETY
1962-1963

86th Annual Session

ARKANSAS MEDICAL SOCIETY

PRESIDENT'S ADDRESS

Wm. A. Snodgrass, Jr., M.D.*

Mr. Chairman; Ladies; and Fellow Colleagues:

First, let me thank each of you for the privilege of serving you as president of the Arkansas Medical Society. I know of no greater honor that the medical profession of Arkansas can bestow upon a man.

I hope that I have done justice to this honor. All I can say is that I have done my best and hope that that best was good enough.

This has been a very trying year, but then I suppose all years seem to be to the man who is president. We have had a great social and political upheaval during 1960, 61, and 62. The medical profession is caught in the tide of socialism.

Arkansas has been the focus of attention in stemming this tide of socialism in that the Hon. Wilbur Mills was instrumental in getting a bill which we all know as the Kerr-Mills Bill passed. Since the author of this bill is one of our representatives in Congress, the national administration is doing its best to nullify or hamper the implementation of programs for aid to the aged. It was and is imperative that this program be carried to a successful operation in Arkansas.

The executive and welfare committees worked diligently to get our program approved by H.E.W. The state welfare department was most cooper-

ative but we found opposition from the national welfare office. We were able to work out an acceptable program. It is not perfect, but is workable and to the best interest of all as far as we could plan it. This plan is working and, I am glad to say, successfully.

This is the day of organization, I do not feel we can stress the importance of organization too much. If we do not get organized, and I must say that I sometimes think that the medical profession is the most disorganized organization that I know. This is due to the fact that we are individualistic in our actions and thoughts. Our training and profession have made us that way. Now there is a need for our forgetting our individualism and getting busy working as a team. How do you think that labor and even politicians get things done except by organized action.

If we don't wake up and work as an organization with concerted action through our county, state and A.M.A., we will lose our battle for freedom to practice medicine as we know it today. We cannot do it as individuals but as a group we can wield strong influence. So let me again ask that each and every one of you go home and get active in your county society and take an active part in the state society.

I was amazed when I looked at the registration

*Donaghey Bldg., Little Rock, Ark.

for the past 3 years. I found that in 1959 at Fort Smith we only had 380 registered, 1960, Pine Bluff, 385; 1961, Little Rock, 439, and so far 1962, 461. Now that represents only a third of our membership of 1260. I think this is a disgrace. Go home and work on your local colleagues to take an active interest in our state organization.

When you are asked to serve on a committee or as a delegate or councilor, take time to serve and study the problems that come up. Certainly participation creates interest. It does not take much time or effort but it is well worth that time spent.

One hears each and every year that the society is run by a clique, a certain few. I agree, that is true but they are men who give their time and efforts for the benefit of you and those who do not participate in the society.

You do not realize how much work is done by your committees on your behalf. There are 33 committees, none that are not important. Here are a few that have done outstanding work this year: the Welfare, Executive, Insurance, Medicare, Blue Cross-Blue Shield, Liaison with the Medical Auxiliary, and, last but not least, the Legislative Committee. This alone kept you from having osteopaths practicing medicine in this state. If it had not been for this com-

mittee, the osteopaths would have gotten a bill through the legislature as a "sleeper bill" which would have given them the right to practice medicine. The committee was able to get this bill blocked and beaten by only about ten votes. Later on the bill was thrown out altogether. They also stopped the basic science board from flooding the state with osteopaths and chiropractors. It was found that in 1959 there were 1,200 applicants taking the basic board where before there were about 100 to 200. These men, after having obtained a basic science certificate were moving into our state. It was necessary that this procedure be stopped; consequently the law was rewritten and the board removed, establishing a new board.

The A.M.A. has done a tremendous job on the King-Anderson Bill but it was because of organized work. Organization is only as strong as its membership and membership means individual activity.

This is personal and I hope you will forgive the personal inference but I believe it is self explanatory. I have a brother-in-law who works in a refinery in Houston, Texas. He has just been out on strike that cost him \$600.00 in pay, and this strike was not for any increase in pay nor did it involve his particular classification, not even the refinery where he worked. However, he felt



President Snodgrass greets the members of the Arkansas Medical Society at the opening of the President's Banquet on Tuesday, May 1.

that he had gotten his money's worth because the union told him all the good things that they had accomplished for his benefit in the past. He pays \$5.60 a week in dues, yet while he was out on strike all he could get was \$10.00 a week from the union and only two weeks at that. What I am getting at is that the union leaders keep telling these people what good things, they, the unions, do for them. I think we could take a leaf from their book and do a little more talking of the good things we get from our organization and develop more interest and coordinated action.

We can do a great deal in changing the public opinion of the medical profession by telling the people what we do for them. Most people believe that we get to work at 11:00 o'clock and leave our offices at 4:00 o'clock, their image of our working day. They do not know that those few hours in the office is the shortest period of that working day, nor do they realize that most of us spend an average of ten hours and more, nor do they know of the time and effort that we each give to charity. Let us, you and I, give the people a different view point of our profession. I do not believe the American people object to paying for what they get if they know they are getting their money's worth.

In closing I would like to make a few recommendations to all of you:

1. Read your mail from the state and A.M.A. officers. It will keep you informed of what is being done in your behalf.

2. Have a better press relations than we have

at the present. We need to get *our* story in the papers, giving our views and reasons why we are against Forand type of legislation.

3. We need a publicity chairman to handle press releases at our state meetings. I do not mean to cast any dispersions on our executive secretary. He has done a good job but after all he is only one man and has other matters to attend to at the annual sessions, he does not have the time to handle as well as he would like to.

4. Go home resolved to be a better and a more active member of organized medicine.

5. I would recommend that the budget be increased for publicity. Our most effective efforts in combating the King-Anderson Bill were the ads placed in the papers in Arkansas. These were run only one time due to lack of funds.

6. Recommend that a survey by a board or committee of all committees, to do two things: specify what the committee functions are and when overlappings occur, to combine such committees into one.

7. That all councilors be more active in contacts with county societies in their respective districts and see that activities and plans of the state and A.M.A. be carried to the county societies.

Ladies and Gentlemen: I thank you for your indulgence. My hope and wish is that I may have inspired and instilled a little spark that will start you to working as an organization for our profession.

This is not Christmas, but like "Tiny Tim", God bless you all.

PROCEEDINGS
86th Annual Session
ARKANSAS MEDICAL SOCIETY
Arlington Hotel, Hot Springs
April 29 – May 2, 1962

FIRST MEETING
HOUSE OF DELEGATES
4:30 p.m., April 29, 1962
Fountain Room, Arlington Hotel
Hot Springs, Arkansas

Speaker C. Lewis Hyatt called the meeting to order in the Fountain Room of the Arlington Hotel and requested Dr. J. P. Price of Monticello to give the invocation.

Secretary Shuffield called the roll of delegates. The following delegates and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead, Sr.; ASHLEY, E. C. Gresham; BAXTER, John F. Guenther; BOONE, H. V. Kirby; BRADLEY, George F. Wynne; CHICOT, Major E. Smith; CLARK, Lewis B. Tilley; COLUMBIA, Charles L. Weber; CRAIGHEAD-POINSETT, Charles Swingle, Durwood Wisdom, B. P. Raney; CROSS, K. E. Beaton; DESHA, J. H. Hellums; DREW, Van C. Binns; FRANKLIN, Wm. C. Hensley; GARLAND, S. B. McConkie, Joe Rosenzweig, H. King Wade, Sr.; GRANT, Miles F. Kelly; HEMPSTEAD, James W. Branch; HOT SPRING, R. V. McCray; HOWARD-PIKE, M. H. Wilmoth; INDEPENDENCE, A. M. Grasse; JACKSON, John Ashley; JEFFERSON, Ross Maynard; George Talbot; JOHNSON, Guy Shrigley; LEE, E. C. Nowell; MADISON, Austin C. Smith; MILLER, Karlton Kemp; NEVADA, Charles A. Hesterly; OUACHITA, L. E. Drewrey; POLK, John Wood; POPEYELL, Roy I. Millard, PULASKI, John McC. Smith, Robert Watson, Gordon Oates, George Mitchell, John Busby, Amail Chudy, James Morrison, Joe Norton, Wm. L. Steele, James W. Headstream; SALINE, J. L. Martindale; SCOTT, Harold B. Wright; SEBASTIAN, James Thompson, Carl Wilson, A. S. Koenig; SEVIER, R. C. Dickinson; UNION; Joe B. Wharton, Kenneth R. Duzan; WASHINGTON, Stanley Applegate. COUNCILORS: Joe Verser, Paul Gray, Hugh Edwards, H. W. Thomas, T. E. Townsend, George C. Burton, Bill Dave Stewart, Robert D. Jones, Ross Fowler, C. C. Long, L. A. Whittaker; OFFICERS, H. King Wade, Jr., H. Elvin Shuffield, Ben N. Saltzman, J. P. Price, PAST PRESIDENTS, Louis K. Hundley, James M. Kolb.

Speaker Hyatt called for a report from the Credentials Committee. Dr. Hugh Edwards, Chairman of the Credentials Committee, reported that credentials of the delegates present had been examined, found correct, and that a quorum was present.

At the request of the Speaker, Joe Norton introduced Dr. Milton Davis of Dallas, Secretary-Treasurer of the American Medical Political Action Committee. Dr. Davis spoke briefly concerning AMPAC and urging participation of all physicians.

Upon the motion of Millard and Swingle, the House adopted the minutes of the 85th Annual Session as published in the June 1961 issue of the Journal of the Arkansas Medical Society.

Chairman of the Council Joe Verser presented to the House the following supplementary report of the Council covering the meeting of March 25th, 1962:

REPORT OF THE COUNCIL

The Council met on March 25th and transacted the following business:

1. Heard a letter inquiring about possibility of aiding an indigent elderly physician in Lawrence County;
2. Heard a report of a survey taken by Dr. George Burton among members of the Union County Medical Society showing that of the 48 physicians questioned, 68% are satisfied with the Kerr-Mills program, 81% are participating in the program, 98% will not participate in a King-Anderson type program. 66% of those replying reported satisfaction with the actions of their representatives in the Arkansas Medical Society and the AMA;
3. Adopted a resolution disapproving the National Blue Shield Plan for health care of the aged because it was felt that in the future it may be sold as a package with a federally subsidized Blue Cross program. It was also the feeling of the Council that a proposal for a uniform

income limit for service benefits on a national basis is unrealistic because of Arkansas' low average income. The Council further felt that medical and hospital benefits can more suitably be served by a local program developed by the Arkansas Blue Cross-Blue Shield plan.

4. Voted to accept the proposed Medicare contract for the period ending 31 March, 1963.
5. Elected Louis K. Hundley to be chairman of the Fee Schedule Committee succeeding Dr. Richardson.
6. Directed the Chairman to appoint a new member of the Board of Trustees of the Employees Pension Trust Fund to replace Dr. Richardson. (Dr. L. A. Whittaker was appointed.)
7. Elected J. M. Kolb to the position of Society representative on the Arkansas Blue Cross-Blue Shield Board of Trustees.
8. Approved an agreement between the Arkansas State Medical Assistants Society and the State Employment Security Division to establish a state-wide placement service to assist physicians in finding office help.
9. Adopted a resolution establishing policy for guidance of the state and county medical societies in their relations with the National Foundation.
10. Accepted and approved the annual report of audit.
11. After a great deal of discussion and testimony, both for and against holding the annual Arkansas Breakfast at the AMA convention, the Council voted in favor of continuing to sponsor the Breakfast as a Society function.
12. After a lengthy discussion of the budget and of the progress of the Medical Education Foundation for Arkansas, the Council voted to approve the budget as presented and to recommend to the House of Delegates that the present \$5 of dues earmarked for MEFFA

be diverted to the general funds of the Society beginning in 1963 and that the Council further recommend to the House of Delegates a \$5 increase in dues effective beginning in 1963.

13. Directed the Chairman to appoint a committee to study and recommend to the House of Delegates the best possible use of funds presently in the Medical Education Foundation for Arkansas account.
14. Voted to ask A. S. Koenig to represent the Society at a Conference on Prepayment Insurance in St. Louis. Dr. Koenig attended the meeting at his own expense.
15. Voted against accepting a contribution from Eli Lilly in lieu of the company's purchasing an exhibit booth at the Annual Session.
16. Voted travel expenses for the Society's attorney to attend a conference of attorneys and executive secretaries in Chicago in May.
17. Voted not to make a contribution to the Arkansas Science Fair retroactive to include 1961.
18. Voted approval of Executive Committee designation of certain hospitals and clinics as Class "B" under the Kerr-Mills Program in Arkansas.
19. Deferred action on selection of a fraternal delegate to the Mississippi State Medical Association.
20. Adopted a resolution commending the formation of a Political Education Committee in Arkansas.
21. Directed the Executive Secretary to write the Arkansas Congressional delegation reaffirming the Council's stand in opposition to social security medicine.

Upon the motion of Hundley and Whittaker, the Council voted to refer the report of the Council as published in the March Journal and the above supplementary report to Reference Committee Number One.



Seated at the head table during the President's Banquet on Tuesday in the Main Dining Room of the Arlington were, left to right: Mrs. Joe Verser, Dr. Verser, Mrs. Martin Eisele, Dr. Eisele, Mrs. Wm. A. Snodgrass, Jr., Dr. Snodgrass, Mr. Roger Fleming, Dr. H. King Wade, Jr., Mrs. Wade, Dr. Elvin Shuffield, and Mrs. Shuffield.

Ben Saltzman, Chairman of the Rural Health Committee, gave a supplementary report for his committee. He reported that the Society's committee had presented plaques to the winners of the Rural Community Improvement contest and urged the Society to continue to present such plaques in future years.

Elvin Shuffield, Chairman of the Committee on Medical Legislation, presented the annual report of his committee.

Dr. George Burton announced that the American Good Government Society was to present its George Washington award to Congressman Wilbur Mills on April 29th. Upon motion of Applegate, second by Burton, the House of Delegates voted to send a congratulatory telegram to Mr. Mills.

Speaker Hyatt introduced Mr. A. M. Edwards, Field Representative of the American Medical Association, who spoke briefly concerning matters of legislation.

At the request of the Speaker, the Society's legal counsel, Mr. Eugene Warren, introduced Mr. Oliver Field of the Department of Investigation of AMA. Mr. Field addressed the House concerning the work of his department.

Dr. C. R. Ellis, Chairman of Reference Committee Two, spoke briefly urging active participation in the Reference Committee meetings scheduled for Monday, April 30th.

Speaker announced that the selection of the nominating committee for election of officers would be made. Delegates from the various councilor districts held meetings on the floor and selected the nominating committee as follows: First District, B. P. Raney; Second District, John D. Ashley; Third District, E. C. Nowell; Fourth District, Louis K. Hundley; Fifth District, George F. Wynne; Sixth District, Charles A. Hesterly; Seventh District, H. King Wade, Sr.; Eighth District, John McC. Smith; Ninth District, Stanley Applegate; Tenth District, C. C. Long.

The meeting adjourned at 6:10 p.m.

FIRST GENERAL SESSION

Monday, April 30th, 1962, 9:00 a.m.

Ballroom, Arlington Hotel

The First General Session of the 86th Annual Session was called to order at 9:00 a.m. on Monday, April 30th, by Charles W. Reid of Pine Bluff, Second Vice President. The scientific program



Incoming President H. King Wade, Jr., shares a joke with Dr. and Mrs. Joe Verser at the President's Banquet.

opened with a showing of the film "Ten Years After Hiroshima." Scientific papers were presented as follows: "The Management of Neck Masses," Steven G. Economou, Chicago; "Systemic Components of Cutaneous Disease", Edward P. Cawley, Charlottesville, Virginia; "Contact Lens, Pro and Con", Joseph Dixon, Birmingham. At 11:30 a.m. invocation was given by Father Savery of St. Joseph's Catholic Church of Hot Springs and William A. Snodgrass, Jr., of Little Rock, presented his President's Address (as printed on page one).

SECOND GENERAL SESSION

Monday, April 30th, 1962, 2:00 p.m.

Ballroom, Arlington Hotel

M. E. Blanton, First Vice President, presided and presented the following scientific speakers:

"General Principles in the Diagnosis and Treatment of Patients With Malignant Lymphomas," Bernard W. Jaslowitz, New York City

"Pyelonephritis," J. U. Schlegel, New Orleans

"Advance in Anesthesiology," Vincent Collins, Chicago

"Non-Infectious Lesions of the Respiratory Tract in Infants and Children," Harvey White, Chicago

Monday Evening, April 30th

COCKTAIL PARTY

The Cocktail Party originally scheduled for the Pool Deck of the Arlington Hotel was rained

out and moved to the Ballroom of the Hotel. The storm didn't seem to dampen the spirits of the members who participated in the party. Organ music was furnished by the hotel.

FIFTY YEAR CLUB BREAKFAST

The Fifty Year Club of the Arkansas Medical Society met for breakfast at 7:30 a.m. on Tuesday, May 1st, in the Arlington Hotel. William A. Snodgrass, Jr., President of the Society, was guest speaker. J. G. Gladden of Harrison is president of the Club and J. H. McCurry of Cash is secretary.

FINAL GENERAL SESSION

Tuesday, May 1, 1962, 9:00 a.m.

Ballroom, Arlington Hotel

The Final General Session was called to order by L. E. Drewrey of Camden, Third Vice President, at 9:00 a.m. on Tuesday, May 1st. Following a showing of the film "Treatment of Thoracic Injuries", Edward Massie of St. Louis spoke on "Medical Aspects of Therapy of Complete Heart Block and Cardiac Arrest"; Roy T. Parker of Durham, North Carolina, discussed "Obstetric Shock". At 10:30 a.m. there was a special show-

ing of an AMA-produced film featuring Edward R. Annis, followed by a talk on "Stress and Coronary Artery Disease" by James F. Hammarsten of Oklahoma City.

MEMORIAL SERVICE

President William A. Snodgrass presided at a Memorial Service honoring members who had passed away during the year. The invocation was given by Dr. John Wm. Smith of Little Rock:

"Our Heavenly Father, we bow our heads to pay tribute and honor to those who have departed our midst since last we met. Just seven days ago the Christian world celebrated the holiest of holy days, Easter. It was on that day that Mary Magdalene climbed the hill while it was still dark. She found the open tomb and asked the angel, 'Where is my Master?' The angel answered, 'He is risen,' so we as Christians know that our loved ones are no longer with us on earth but have risen to His home. We are told in the Book of St. John that 'For God so loved the world, that He gave His only begotten Son, that whosoever believeth in Him should not perish but have everlasting life.' Christ himself told us 'I go to prepare a place for you.' He also said, 'In My Father's house are many mansions. If it were not so I would have told you.' Again as Christians we must feel as Peter Marshall did when he knew he was seeing his wife for the last time, 'I will see you tomorrow.' As Christians, we must feel this way. Amen."



The Cocktail Party scheduled for the Pool Deck was driven indoors by a Spring storm.

Mrs. T. Duel Brown, Auxiliary Chaplain, read the names of the deceased members of the Auxiliary:

Mrs. M. C. Crandall, Wilmot
Mrs. H. F. Mayfield, El Dorado
Mrs. D. K. McCurry, Green Forest
Mrs. D. L. Owens, Harrison
Mrs. R. B. Robins, Camden
Mrs. J. A. Summers, Little Rock
Mrs. Albert Tribble, Hot Springs
Mrs. E. D. McKnight, Brinkley
Mrs. Marcus T. Smith, Tichenor
Mrs. Pat Murphy, Little Rock
Mrs. John Ashley, Newport

President Snodgrass read the names of the deceased members of the Society:

Richard M. Atkinson, Bentonville, October 23, 1961
Charles B. Beeby, Huntsville, October 11, 1961
W. E. Berry, Jonesboro, March 11, 1962
Herman L. Brown, Little Rock, June 9, 1961
W. R. Brooksher, Jr., Little Rock, April 14, 1962
C. A. Campbell, Mena, November 25, 1960
Curtis W. Chaffin, Moro, May 22, 1961
Charles R. Chesnutt, Little Rock, February 28, 1962
Walter G. Eberle, Fort Smith, July 19, 1961
John P. Fergusson, Altheimer, May 29, 1961
Lycurgus Gardner, Russellville, November 8, 1961
Frank N. Gordon, Fayetteville, September 10, 1961
Edward Kuitgen, West Memphis, February 10, 1962
Vincent H. Marques, Lake Village, July 8, 1961
G. F. McLeod, Magnolia, March 18, 1961
Benjamin C. Middleton, Texarkana, October 5, 1961
Harry E. Murry, Texarkana, January 25, 1962
George W. Parson, Texarkana, December 18, 1961
Arthur L. Peacock, Gentry, October 10, 1961
Harold H. Phipps, Hot Springs, January 31, 1962
Fount Richardson, Fayetteville, November 23, 1961
Albert R. Sparks, Little Rock, April 30, 1961
John M. Stanford, Conway, October 26, 1961
Ralph E. Weddington, Fayetteville, August 2, 1961

The Memorial Address was given by Dr. Walter H. O'Neal of Little Rock as follows:

MEMORIAL ADDRESS

It is with mingled emotions that I approach this occasion—I am, of course, saddened as I remember those of my colleagues who have fallen before that arch enemy, Death, the approach of which they have often been successful in fending off for many others. One is apt to find among the general public a feeling that Doctors should know all of the answers to all of life's physical problems; that they have in some manner failed their constituency when they, themselves, prove to be mere mortals, subject to the same ills and weaknesses as others. A doctor, they often say, is supposed to know what to do—or, to be more literary, "Physician, heal thyself".

Yet we do find that doctors are human beings, and that their failings afflict them to the end.

Often they neglect their own bodies in order to serve the needs of others. As I consider the ages of those men whose names we have heard today, I realize that many of them were young men—some much younger than I.

And yet, from the standpoint of accomplishments, at whatever age death chooses to take us, do we all not die young? Whenever has a man in the medical profession felt that he has finished his work? Supposing that the grim reaper awaited our summons, at whatever time we feel that we can hand the work over to some other one, younger and more energetic—who would ever reach that point? Indeed, whoever wants to reach a real termination of work, to drop out of sight behind the horizon, to ever call it a day, so to speak?

Robert Louis Stevenson, in his essay, "Aes Triplex" says:

"A spirit goes out of the man who means execution, which outlives the most untimely ending. All who have meant good work with their whole hearts, have done good work, although they may die before they have the time to sign it. Every heart that has beat strong and cheerfully has left a hopeful impulse behind it in the world, and bettered the tradition of all mankind." And in the same essay he writes, "For surely, at whatever age it overtakes the man, this is to die young."

And so it is with pride mingled with sadness that I remember these, my brothers in healing, for I believe that each one of them did mean good work with their whole hearts. Furthermore, their work was not ended when their days on earth were done, for, like runners in a relay, they have passed the wand on to us who remain, to carry with the same pride and devotion, and to pass on to others in due time when it is our turn to leave the race.

It remains for us to carry this sacred trust in such a way that those whom we memorialize in this manner may, if God has willed that they look down upon our efforts, feel pride in our occasional successes. If we could speak to them, we would say that the torch is still held as high as the limited reach of humankind can hold it—that we live for the same cause for which they lived—and died—and that the search for ways to end, or abate, the various ills of humanity will still continue to hold in thrall the hearts and lives of countless numbers of young (and old) until the battle is won.

Every man who undertakes to heal enters into a partnership with God, and no one will deny that, in this partnership, it is God who holds the controlling interest. Small wonder, then, that the senior Partner may at times see fit to continue the work at another place or in another manner. This, then, is what we believe has happened to our brothers. We cannot picture them resting in idleness in this part of their existence, but we feel instead that there is satisfying work for their hands to do; and although we are told that in that place there is no pain and no sickness, it must be a treat that will last for centuries just to be able to know the answers to the many riddles that have plagued and hindered us in our work. There must be a world—yes, even a universe—of knowledge to be absorbed by a mind that has been freed of its earthly limitations.

MacLaren has said, "Strip the man of the disturbances that come from a fevered body, and he will have a calmer soul. Strip him of the hindrances which come from a body that is like an opaque tower around his spirit, with only a narrow crevice here and a narrow door there—five poor senses with which he is connected with the outer universe—and surely the spirit will have wider avenues out to God. It will have larger powers of reception, because it has become rid of the closer confinements of the fleshly tabernacle."

Irvin S. Cobb had this to say about the fleshly transition: "—I, who have skirted the Valley of the Shadow, say that if my own experience is typical—and it surely must have been—then those among us whose lot it will be to face the finish while still in reasonable possession of our faculties will face it without fear and without bitterness, without reluctance and without repinings, without sufferings, whether physical or mental; we shall find it, at the last, but a peaceful transition, an eternal change, mercifully accomplished."

The Psalmist has written: "Yea, though I walk through the valley of the shadow of death, I will fear no evil, for Thou art with me." Physicians walk very near to this valley many times in the course of their daily rounds, and they learn very early that some of its mysteries will remain such for as long as the earth turns. Many things about the practice of medicine may be called triumphs—but before this one thing, every head bows, and every spirit submits. Again quoting from Stevenson: "—the thing (Death) stands alone in man's experience, and has no parallel upon earth. It

outdoes all accidents, because it is the last of them."

And so, today, we are left to do naught but submit—we believe in the wisdom and the goodness of God—as we ourselves must pass under the rod at our appointed time, so do we, in effect, agree to the passing of these, for we cannot do otherwise. Let us, instead of grieving and casting accusations at our Maker, thank Him instead for each useful life, however long or short, that He has vouchsafed for a time to our profession. To the extent that these people lived and worked among us, to that same extent has our own work been lifted and lightened. Pray God that as much may be said for us when our own name is added to that list.

Following the Memorial Address, Dr. Harold Hawley of Little Rock sang. Benediction was by Dr. Smith.

"Now the God of Peace, that brought again from the dead our Lord Jesus, that great Shepherd of the sheep, through the blood of the everlasting covenant, make you perfect in every good work to do His will, working in you that which is well pleasing in His sight, through Jesus Christ; to whom be glory for ever and ever. Amen."

SPECIALTY SECTION MEETINGS

Tuesday, May 1, 1962

There was no general session on Tuesday afternoon, May 1st. Specialty meetings were held as follows:

THE EYE, EAR, NOSE AND THROAT SECTION met in the Fountain Room of the Arlington, beginning at 9:00 a.m. and continuing until 4:00 in the afternoon. Speakers were Joseph Dixon of Birmingham, Alabama, and R. H. McArthur, of Jackson, Mississippi.

THE ARKANSAS SOCIETY OF INTERNAL MEDICINE met for luncheon and a business meeting in the Main Dining Room of the Arlington Hotel. Following the luncheon there was an open scientific session in the Ballroom of the Hotel with Edward Massie of St. Louis and James F. Hammersten of Oklahoma City as guest speakers.

THE ARKANSAS ACADEMY OF GENERAL PRACTICE AND THE SECTION ON PEDIATRICS held a joint luncheon and scientific session in the Velda Rose Motel. Guest speaker Harry G. Shirkey presented two papers. William T. Kniker, Alice G. Beard, F. Stanley Porter and Delbert A. Fisher, all of the University of Arkansas School of Medicine staff, were participants in a panel discussion.

THE SECTION ON UROLOGY met in the Presidential Suite of the Velda Rose Motel for a luncheon and scientific session with J. U. Schlegel as guest speaker.

THE SECTION ON RADIOLOGY met in Cafe 2 of the Arlington for luncheon, a business meeting, and a scientific session with Harvey White of Chicago as guest speaker. Howard Barnhard of Little Rock moderated a discussion period and a film reading session was moderated by Dr. White.

THE SECTION ON OBSTETRICS AND GYNECOLOGY met in the Banquet Room of the Arlington for a luncheon and scientific session. Roy T. Parker of Durham, North Carolina, was guest speaker; Willis E. Brown, Melvin McCaskill, and Deane D. Wallace, all of Little Rock, participated in a panel discussion.

THE SECTION ON ORTHOPEDICS met for luncheon and a scientific program at the Majestic Hotel. T. E. Waring of Memphis was guest speaker.

THE SECTION ON ANESTHESIOLOGY met at 2:00 p.m. in the Parlor of the Arlington for a scientific session with Dr. Vincent Collins of Chicago as guest lecturer.

ANNUAL PRESIDENT'S BANQUET

**Tuesday, May 1, 1962, Main Dining Room
Arlington Hotel**

Dr. William A. Snodgrass, Jr., Society president, presided at the Annual Banquet on Tuesday evening. The tables in the Main Dining Room of the Arlington were beautifully decorated with flowers and candles and music was furnished by the hotel orchestra.

Gaston Hebert of Hot Springs, chairman of the Golf Tournament Committee, announced the

names of the winners of the tournament. H. L. Wineland of Pine Bluff won the silver cup. H. F. Gray of Little Rock was second place winner and Paul Henley of El Dorado placed third.

Dr. Snodgrass presented a check from the American Medical Association Education and Research Foundation to Winston K. Shorey, Dean of the University of Arkansas School of Medicine. The \$8,270.52 check represented Arkansas' share of contribution made to AMAERF during 1961. Dr. Snodgrass also presented to Dean Shorey a check from Mrs. Ruth Sparks Roden for a "Ruel Sparks Scholarship" in honor of her late husband.

Dr. Snodgrass introduced all past presidents present and requested Past President H. King Wade, Sr. to escort his son, H. King Wade, Jr., to the rostrum for the installation ceremony. This was the first time that a past president of the Arkansas Medical Society had participated in the inauguration of his son as president of the Society. The oath of office was administered by Dr. Snodgrass.

OFFICERS OF THE ARKANSAS MEDICAL SOCIETY 1962-1963



Front row, left to right: Speaker of the House Lewis Hyatt, Councilors Paul Gray, Bill Dave Stewart, Hugh Edwards; President-elect Joe Verser, President H. King Wade, Jr., Councilors Ross Fowler, Stanley Applegate, Treasurer Ben Saltzman, Chairman of the Council H. W. Thomas. Back row, left to right: Councilors G. A. Sexton, Karlton Kemp, George Burton, Secretary Elvin Shuffield, Councilors John Wood, Martin Eisele, Jack Kennedy, Thomas Townsend, L. A. Whittaker, Past President James M. Kolb, Councilor Joe Norton and Executive Secretary Mr. Paul C. Schaefer.

Dr. Wade thanked the Society for the honor bestowed upon him and urged all members of the Society to actively participate in the work of the Society during the next year.

Mr. Roger Fleming, Secretary-Treasurer of the American Farm Bureau Federation gave a talk on free enterprise which was enthusiastically received by the crowd.

PAST PRESIDENTS' BREAKFAST

The Past Presidents of the Arkansas Medical Society met for breakfast at 7:30 a.m. on Wednesday, May 2nd, in Cafe 2 of the Arlington Hotel.

FINAL MEETING

HOUSE OF DELEGATES

10:00 a.m., Wednesday, May 2, 1962

Arlington Hotel, Hot Springs

Speaker Hyatt called the House of Delegates to order at 10:00 a.m. on Wednesday, May 2, 1962, in the Ballroom of the Arlington Hotel. He requested Dr. H. W. Thomas of Dermott to give the invocation.

Mr. Schaefer called the roll of delegates. The following delegates and members seated as delegates by action of the House were present:

BAXTER, John F. Guenther; BOONE, Henry V. Kirby; BRADLEY, George F. Wynne; CHICOT, Byron Binns; COLUMBIA, Charles L. Weber; CRAIGHEAD-POINSETT, Charles Swingle, G. D. Wisdom, B. P. Raney; DREW, J. P. Price; FRANKLIN, Wm. C. Hensley; GARLAND, S. B. McConkie; Joseph Rosensweig; Euclid M. Smith; GREENE-CLAY, A. E. Andrews; HEMPSTEAD, James W. Branch; HOT SPRING, C. R. Ellis; INDEPENDENCE, C. W. Taylor; JEFFERSON, Ross Maynard, George Talbot; JOHNSON, Guy Shrigley; LEE, E. C. Nowell; MILLER, Andrew Goels; NEVADA, Charles A. Hesterley; OUACHITA, L. E. Drewrey; POPE-YELL, Douglas Lowrey; PULASKI, John McC. Smith, Robert Watson, Gordon Oates, George Mitchell, John Busby; Amail Chudy, James Morrison, Joe Norton, William Steele, James Headstream; SEBASTIAN, Carl Wilson, A. S. Koenig; ST. FRANCIS, G. A. Sexton; UNION, Frank Thibault, Sam Jameson; WASHINGTON, Morris Henry, W. H. Mock; COUNCILORS, Joe Verser, Eldon Fairley, Hugh Edwards, Paul Gray, K. E. Beaton, T. E. Townsend, H. W. Thomas, George Burton, John Wood, Martin Eisele, Bill Dave Stewart, Robert D. Jones, Ross Fowler, Stanley Applegate, L. A. Whittaker, C. C. Long, Karlton Kemp, OFFICERS, H. King Wade, Jr., C. Lewis Hyatt, Elvin Shuffield, Ben N. Saltzman; PAST PRESIDENTS, James M. Kolb, Louis K. Hundley, T. Duel Brown, L. H. McDaniel, Euclid M. Smith, Wm. A. Snodgrass.

The Chairman of the Credentials Committee reported that a quorum was present.

Louis K. Hundley, Chairman of the Nominating Committee, presented the following report:

The Nominating Committee submits the following proposed slate of officers:

FOR PRESIDENT-ELECT:

Joe Verser, Harrisburg

T. Duel Brown, Little Rock

Upon motion of Hundley and Snodgrass, the House adopted that part of the report. Speaker Hyatt asked for nominations from the floor. Norton moved, second by Edwards, that nominations cease; motion carried. T. Duel Brown requested that his name be withdrawn, and moved that Verser be unanimously elected. Upon second by Snodgrass, the House so voted.

Chairman Hundley then presented the remainder of the Nominating Committee's report as follows:

FOR FIRST VICE PRESIDENT:

Henry G. Hollenberg, Little Rock

SECOND VICE PRESIDENT:

Berry L. Moore, Sr., El Dorado

THIRD VICE PRESIDENT:

James W. Branch, Hope

TREASURER:

Ben N. Saltzman, Mountain Home

SECRETARY:

Elvin Shuffield, Little Rock

SECRETARY EMERITUS:

W. R. Brooksher, Fort Smith

SPEAKER, HOUSE OF DELEGATES:

C. Lewis Hyatt, Monticello

VICE SPEAKER, HOUSE OF DELEGATES:

John P. Price, Monticello

COUNCILORS:

First District—Paul Ledbetter, Jonesboro

Second District—Hugh R. Edwards, Searcy

Third District—G. A. Sexton, Forrest City

Fourth District—H. W. Thomas, Dermott

Fifth District—John L. Ruff, Magnolia

Sixth District—John Wood, Mena

Seventh District—Martin Eisele, Hot Springs

Eighth District—Joseph A. Norton, Little Rock

Ninth District—Ross Fowler, Harrison

Tenth District—L. A. Whittaker, Fort Smith

DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION (1-1-63/12-31-64):

James M. Kolb, Clarksville

ALTERNATE DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION (1-1-63/12-31-64):

C. C. Long, Ozark

ALTERNATE DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION (term ending 12-31-63):

Alfred Kahn, Jr., Little Rock

Upon motion of Hundley and Applegate, the House adopted the last part of the report. Speaker Hyatt asked for nominations from the floor. Upon motion of Drewrey and Thibault, nominations were closed and the slate was unanimously elected.

Speaker Hyatt requested Past Presidents James M. Kolb and Euclid Smith to escort the new president-elect to the rostrum. Dr. Verser briefly thanked the House of Delegates for selecting him for the office.

Speaker Hyatt called for the report of Reference Committee Number One. Dr. H. W. Thomas, Chairman of the Committee, presented the report as follows:

REPORT OF REFERENCE COMMITTEE NUMBER ONE

Reference Committee Number One, composed of Dr. C. C. Long, Dr. Joe Buchman, and Dr. H. W. Thomas as Chairman, met at 2:00 p.m. on April 30, 1962, and considered the various reports assigned to it. Approximately 25 members of the Arkansas Medical Society appeared before the committee to express views and opinions concerning several of the more controversial issues involved.

The committee took action as follows:

1. Recommended approval of the following reports as published, all of which were considered to be of a non-controversial nature.
 - (a) Report of the Committee on Cancer Control
 - (b) Report of the Committee on Rural Health
 - (c) Report of the Committee on Industrial Health
 - (d) Report of the Committee on Tuberculosis
 - (e) Report of the Committee on Mental Health
 - (f) Report of the Committee on Liaison with the State Board of Health
 - (g) Report of the Polio Advisory Committee
 - (h) Report of the Committee on Liaison with the Woman's Auxiliary to the Arkansas Medical Society
 - (i) Report of the Traffic Safety Committee
 - (j) Report of the Committee on Constitutional Revision
 - (k) Report of the Senior Medical Day Committee
 - (l) Report of the Seventh Councilor District Professional Relations Committee
 - (m) Report of the Eighth Councilor District Professional Relations Committee
 - (n) Report of the Tenth Councilor District Professional Relations Committee
 - (o) Report of the Arkansas State Advisory Committee to the Selective Service System
 - (p) Report of the Annual Session Arrangements Committee
 - (q) Report of the Executive Secretary

The Reference Committee wishes to call attention to that part of this report which points out the fact that the cost of one item alone—postage—has already increased \$850 yearly and will soon increase another \$850 yearly.
- (r) Report of the Arkansas State Medical Board
2. The Committee heard discussion of the Report of the Committee on Liaison with the Welfare Department with particular reference to the Kerr-Mills Program and recommends approval as published. Reference Committee Number One calls your attention to the fact that the entire Arkansas Medical Society owes a special debt of gratitude to Dr. Randolph Ellis as Chairman and his entire committee, and to Dr. Joe Verser as Chairman of the Council for their many long hours of work on this thankless task and we would further remind each and every member of the Arkansas Medical Society that he has a moral, practical, and very per-

sonal, obligation to make every effort to see that the Kerr-Mills Program does work in Arkansas.

3. The Reference Committee considered the 51 items covered in the report of the Council and found all of them to be non-controversial except those dealing with MEFFA, the Arkansas Breakfast, increase in dues, the resolution of non-participation, and the election of Dr. J. M. Kolb to the Blue Cross-Blue Shield Board of Trustees. The Committee recommends approval of the reports of the Council as published and as read to the House of Delegates with the exception of these five items.

Dr. Thomas moved adoption of this section of the Report of Reference Committee Number One. Upon second by Hundley, the report was adopted by the House of Delegates.

Dr. Thomas then presented the next item of the report of his committee:

4. With reference to the vacancy on the Board of Trustees of Blue Cross-Blue Shield, which the Council elected Dr. J. M. Kolb to fill, the Reference Committee calls attention to the fact that other nominations may be made from the floor of the House of Delegates.

Upon motion of Hundley and Snodgrass, the House adopted that section of the report of Reference Committee Number One. Dr. A. S. Koenig explained the duties of a member of the Board of Trustees of Blue Cross-Blue Shield. Speaker Hyatt called for nominations from the floor. Joe Norton, delegate from Pulaski County, nominated Dr. J. P. Price of Monticello. Upon motion of Edwards and Drewrey, nominations were closed. Speaker Hyatt requested George Talbot, John McCullough Smith and Byron Binns to serve as tellers for vote by secret ballot. Dr. J. P. Price was elected. Upon motion of Kolb and Ellis, the House voted to make the election unanimous.

Dr. Thomas then presented the next item of the report of his committee:

5. With reference to the Arkansas Breakfast, the Reference Committee recommends that due to the late hour and the present advanced state of planning for this breakfast, the Arkansas Medical Society sponsor it for this year, but that no further sponsorship of this function by the Arkansas Medical Society be undertaken unless specifically directed by the Council or House of Delegates.

Thomas moved adoption of this part of the report of the Committee, second by Burton. After discussion by Joe Verser, Stuart McConkie of Garland County proposed substitute motion that the Arkansas Breakfast be discontinued as a Society function, second by Stewart. There was considerable discussion on the breakfast both pro and con. By secret ballot, the House of Delegates ap-

proved the substitute motion by a great majority.

The report of Reference Committee Number One was continued by Dr. Thomas:

6. Reference Committee Number One recommends that MEFFA be continued and that the \$5.00 being collected by Arkansas Medical Society for this purpose continue to be earmarked for this purpose. It is further recommended that the present unwieldy administrative organization be changed to a five-member Board of Trustees and three ex-officio members (President, President-elect, and immediate Past President). It is recommended that four of these trustees be appointed by the President of the Arkansas Medical Society for staggered terms of four years each and that the fifth member be the Dean of the University of Arkansas School of Medicine. It is further recommended that Dr. Robert Watson of Little Rock be designated at this time as Chairman of the Board of Trustees. It is further recommended that funds currently on hand be invested in such a way as to be earning interest until such time as they are used for designated purposes.

Dr. Thomas moved adoption of this item of the report. Second by Ellis. Verser stated that he wanted to go on record as being one hundred percent in favor of the proposal for continuing MEFFA for the present and giving Dr. Watson a chance to carry out the purposes of the Foundation. The House voted to adopt this section of the report. (There were three dissenting votes.)

Dr. Thomas then presented the next item of his report:

7. It is recommended that the resolution of non-participation originally submitted by the Ouachita County Medical Society and subsequently approved by the Council be tabled at this time, and that the President of the Arkansas Medical Society be instructed by the House of Delegates that, if the King-Anderson or similar type legislation is passed by the House of Representatives, that he (the President of Arkansas Medical Society) shall, as soon as practical, call a meeting of the Council and the House of Delegates to consider appropriate action and that such meeting shall be called not later than two weeks after any such passage of the King-Anderson Bill or similar legislation.

Upon motion of Thomas and Eisele, the House adopted this section of the report. Dr. Thomas then presented the last item of his report:

8. After considerable discussion, both pro and con, and after taking note of the fact that most members of the Arkansas Medical Society, who so vocally oppose any recommendation to raise the dues of AMS, are paradoxically so strangely silent when they are asked to participate in an active campaign to preserve the private practice of medicine and to oppose the socialistic programs of the Federal Government, Reference Committee Number One recommends that the annual dues of the Arkansas Medical Society be raised \$10.00 a year to \$45.00.

Dr. Thomas moved adoption of this section of the report, second by Hundley.

Dr. Wynne of Bradley County voiced objection of his local society to increase in dues. Verser questioned necessity for increase in dues. Hundley spoke briefly as a member of the Budget Committee, stating that a dues increase was needed if work of Society is to continue at the present level, or the Society would have to use some of its reserve funds for operating expenses. Hundley then proposed a substitute motion that dues for this year be increased by the House of Delegates. There was no second to the motion. J. P. Price moved that dues be increased \$15, no second. John McC. Smith stated that the delegation from Pulaski County had been instructed to vote against a dues increase. Snodgrass and Thomas reiterated the need for funds for Society officers to carry out programs which are considered essential. By secret ballot, the House of Delegates adopted the recommendation of the Reference Committee by a vote of 47 to 16.

Upon motion of Townsend and Oates, the House of Delegates voted to direct the Executive Secretary to send a letter to each member notifying him of the increase in dues and the necessity for it.

Gordon Oates commented that for several years he had been urging publication of more information on the expenditures of Society funds and that he wanted to call the attention of the House of Delegates to the fact that this year a complete budget had been published in the Journal of the Arkansas Medical Society and a copy of the annual report of audit of the Society was available for every member of the House of Delegates. He suggested that if each member would take a copy of the audit report back to his county society it would constitute adequate explanation for the necessity of increasing dues. Dr. Oates further stated that he was satisfied with the amount of information made available on Society fiscal affairs.

C. R. Ellis, Chairman of Reference Committee Number Two, submitted the following report:

REPORT OF REFERENCE COMMITTEE NUMBER TWO

Mr. Speaker, your committee wishes to thank those that appeared at our open hearing. All were given the opportunity to speak on each subject as it was considered.

The reports of the following committees were reviewed and approved. They did not elicit any comments. They were as follows:

1. Committee on Medical Education
2. Committee on Postgraduate Education
3. Committee on Hospitals
4. Committee on Liaison with Blue Cross-Blue Shield
5. Advisory Committee to the Medical Assistants Society
6. Committee on Veterans Administration Affairs
7. Committee on Insurance
8. Reports of the First, Second, Third, Fourth, and Sixth Councilor District Professional Relations Committees

Each of the above committees is to be commended for its work this past year. Mr. Speaker, I recommend the adoption of this portion of the report. House voted approval.

Your Committee next considered the recommendations as given on page 449 of the March issue of the Journal of the Arkansas Medical Society given by the Sub-Committee on State Health and Medical Resources for Civil Defense (Sub-Committee of Committee on Health and Public Instruction. While we are in accord with the recommendations as given by this committee, we feel that it is not necessary to make a separate committee. Instead, we recommend to the House of Delegates and the President that this committee be increased to sufficient size that at least one representative be from each councilor district on a staggering term basis. Mr. Speaker, I move that this portion of the report be adopted. The House so voted.

The report of the State Board of Health. Your committee considered this long and informative report and wishes to commend Dr. Herron on his thoroughness. However, your committee recommends that in the future following such a voluminous report that a brief summary be given at the end. It was also brought to the attention of the committee that the State Board of Health is in dire need of more funds in its budget to adequately take care of the needed increased services which it is supposed to carry out. Also, there is need for more part-time health officers. It is the recommendation of this committee that the Health Department request from the legislative budget council the increased budget that it needs. We recommend that the House of Delegates submit a copy of this report to the State Board of Health and to the legislative council. Mr. Speaker, I move the adoption of this portion of the report. House voted to adopt this portion of report.

The report of the Budget Committee as given on pages 455 and 456 was considered. Due to the fact that two items, namely the Arkansas Breakfast given for the House of Delegates of the AMA

and the increase in dues, were referred to Reference Committee Number One by the Speaker of the House, these two items were not considered and no action was taken on them. The rest of the budget was discussed and approved. Mr. Speaker, I move the adoption of this portion of the report. Upon second by Koenig, the House voted approval of this portion of the report.

The committee considered the Report of the Legislative Committee as read to the House of Delegates by Dr. Elvin Shuffield. We are in accord with this report and recommend its adoption. Mr. Speaker, I move the adoption of this portion of the report. Upon second by Steele, the House so voted.

Mr. Speaker, I move the adoption of the report as a whole. Upon second by Saltzman, The House voted adoption of the complete report of Reference Committee Number Two.

Speaker Hyatt read the following telegram to the House of Delegates:

"Best wishes to the Arkansas Medical Society on this, its 86th Annual Session. We regret that we are unable to attend. Our requests for leave so that we could personally attend were denied by the Army on the grounds that our attendance would not benefit the Army Medical Service. In our situation this denial is utterly ridiculous because our presence in the Armed Forces since October 1961 has been one of surplus and waste. We wish to call the attention of the House of Delegates to the fact that no positive effort has been made in our behalf to ascertain our real need here or anywhere in the Army under the present callup. We are aware that the Medical Society can have influence in the release of its members when no real need exists for their military service. This was demonstrated earlier this year when a fellow physician was released with the help of a county medical society to assume a practice in Little Rock. In view of the above, we feel that we have been let down for lack of your interest. Wish you were all here. Signed by: Roy Brinkley, M.D., Charles E. Hicks, M.D.; Frank Stroope, M.D.; Julian Foster, M.D.; Nicholas Riegler, M.D., 916th Surgical Hospital, Fort Jackson, South Carolina—formerly of Little Rock."

Councilor Bill Dave Stewart read the following letter to the House of Delegates:

"On behalf of the members of the 148th Evacuation Hospital which is at present on active duty at Fort Chaffee, we wish to announce that we will be released from active duty on August 9th this year. The entire unit, both physicians and others, are most happy to be able to return to civilian pursuits. While this tour of active duty has been inconvenient for all—each member has been very much aware of his obligation and we feel that it has served a significant purpose. Signed: Colonel Joe H. Hardin, Commanding; Lieutenant Colonel Robert M. Stainton, Lieutenant Colonel Hal R. Black, Jr."

Dr. L. A. Whittaker, Chairman of the Resolutions Committee, presented the following proposed resolutions:

RESOLUTION OF APPRECIATION

City Officials

WHEREAS, the 86th Annual Session of the Arkansas Medical Society just completed in Hot Springs has been an outstanding success, and

WHEREAS, the officials of the City of Hot Springs have added much to the success of this meeting,

BE IT RESOLVED, that the House of Delegates express its thanks for the Medical Society to the Mayor.

RESOLUTION OF APPRECIATION

ARLINGTON HOTEL

WHEREAS, the 86th Annual Session of the Arkansas Medical Society just completed in Hot Springs has been an outstanding success,

WHEREAS, the management of the Arlington Hotel has contributed immeasurably to the success of the meeting in providing accommodations for the numerous sections and luncheons as well as for the general meetings, in arranging publicity, and in furnishing projectors and a projectionist,

THEREFORE, BE IT RESOLVED, that the House of Delegates express its thanks for the Medical Society to Mr. Edgar A. May, Manager of the Hotel; Miss Sally Sloane, Publicity Director, to the Engineering Department, to the Catering Department, and to other members of the staff of the Arlington Hotel.

RESOLUTION OF APPRECIATION

NEWS MEDIA

WHEREAS, the 86th Annual Session of the Arkansas Medical Society just completed in Hot

Springs has been an outstanding success, and

WHEREAS, the Hot Springs Sentinel-Record, Hot Springs News Era, the Arkansas Gazette, the Arkansas Democrat, KFOY-TV of Hot Springs, KARK-TV, KATV, KTHV of Little Rock have made available to the Medical Society extended coverage of its meetings,

BE IT RESOLVED, that the House of Delegates express its thanks for the Medical Society to the News Media mentioned above.

RESOLUTION OF APPRECIATION

COMMERCIAL EXHIBITORS

WHEREAS, the 86th Annual Session of the Arkansas Medical Society just completed in Hot Springs has been an outstanding success, and

WHEREAS, if it were not for exhibits by firms like yours, holding this meeting would have been extremely difficult,

BE IT RESOLVED, that the House of Delegates express its thanks for the Medical Society to the exhibitors.

RESOLUTION OF APPRECIATION

COMMITTEE ON ARRANGEMENTS

WHEREAS, the 86th Annual Session of the Arkansas Medical Society just completed in Hot Springs has been a most successful meeting, and

WHEREAS, the Host County Medical Society has gone out of its way to be most courteous to all of us in attendance at this meeting,

BE IT RESOLVED, that the House of Delegates express its thanks for the Medical Society to the Committee on Arrangements of the Garland County Medical Society.

RESOLUTION OF APPRECIATION

Staff

WHEREAS, the 86th Annual Session of the Arkansas Medical Society, having reached a successful conclusion, and

WHEREAS, the multitude of technical details, arrangement of facilities and maintenance of a registration desk have been so capably handled,

THEREFORE, BE IT RESOLVED, that Miss Leah Richmond and her staff be especially commended for the thoughtful and capable manner in which she has carried out her appointed duties.

RESOLUTION OF APPRECIATION

Father Savery

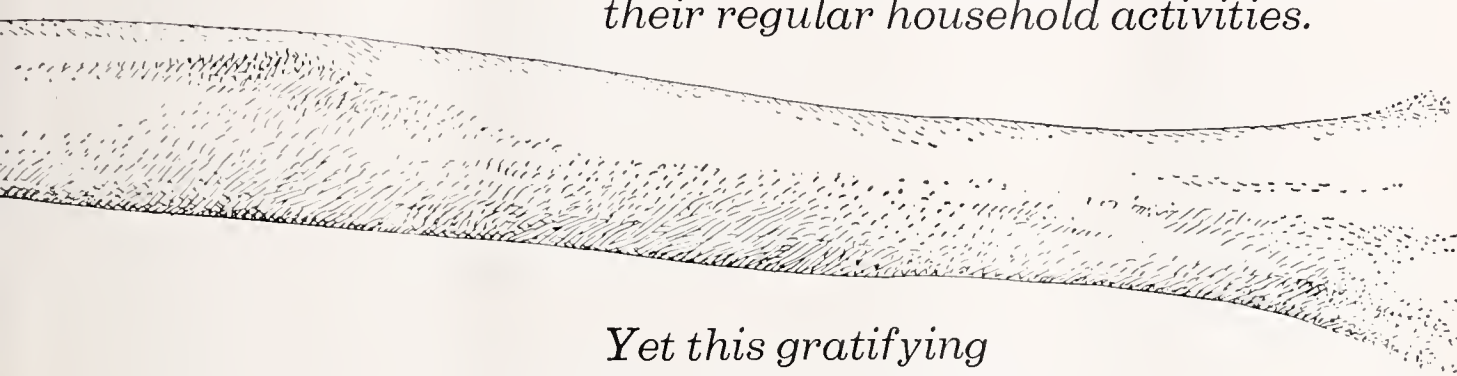
WHEREAS, the 86th Annual Session of the Arkansas Medical Society just completed in Hot Springs has been an outstanding success, and

gratifying relief fo



ainful joints

With ARISTOCORT, patients with painful, arthritic joints obtain rapid reduction of pain and inflammation, as well as substantial improvement in joint mobility. Many patients who might otherwise be confined in a state of invalidism have been able—with ARISTOCORT—to continue their customary livelihoods or go about their regular household activities.



Yet this gratifying symptomatic relief may not be accompanied by severe hormonal collateral effects, such as sodium retention, edema, emotional disturbance, insomnia or voracious appetite—that may prevent patients from obtaining corticosteroid benefits.

unsurpassed for total patient benefits

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Pearl River, New York

WHEREAS, Father Savery assisted the meeting by giving the opening invocation,

BE IT RESOLVED, that the House of Delegates express its thanks for the Medical Society to Father Savery.

RESOLUTION OF APPRECIATION

Hot Springs Golf and Country Club

WHEREAS, the 86th Annual Session of the Arkansas Medical Society just completed in Hot Springs has been an outstanding success,

WHEREAS, the Hot Springs Golf and Country Club has been most generous in making its golf course available for the Golf Tournament;

BE IT RESOLVED, that the House of Delegates express its thanks for the Medical Society to the Hot Springs Golf and Country Club.

RESOLUTION OF APPRECIATION

Garland County Auxiliary

WHEREAS, the 86th Annual Session of the Arkansas Medical Society, just completed in Hot Springs has been an outstanding success,

WHEREAS, your group has contributed immeasurably to its outcome,

BE IT RESOLVED, that the House of Delegates express its thanks to the Woman's Auxiliary to the Garland County Medical Society.

RESOLUTION OF APPRECIATION

Mr. Karr Shannon

WHEREAS, Mr. Karr Shannon has done an outstanding job both in accuracy and completeness in editorials printed in the Arkansas Democrat, and

WHEREAS, the favorable support that Mr. Shannon has accorded organized medicine in the past,

BE IT RESOLVED, that the House of Delegates of the Arkansas Medical Society express its thanks to Mr. Karr Shannon.

RESOLUTION

Dr. William Riley Brooksher, Jr.

WHEREAS, God in infinite wisdom has seen fit to take from this life Dr. William Riley Brooksher, Jr., on the threshold of a promising medical career, and,

WHEREAS, even though this time was short, Dr. Brooksher had made many friends in his residency and will long be remembered by his associates and patients for his compassionate service, and

WHEREAS, he was the son of Dr. and Mrs. W. R. Brooksher, Sr., who have devoted their lives to the advancement of organized medicine in Arkansas and the House of Delegates regrets the necessary absence of Dr. W. R. Brooksher, Sr., from the House of Delegates meetings of the 86th Annual Session of the Arkansas Medical Society,

THEREFORE, BE IT RESOLVED, that the House of Delegates of the Arkansas Medical Society extends its deepest sympathy to the wife and parents of Dr. William Riley Brooksher, Jr., and

BE IT FURTHER RESOLVED, that a copy of this resolution be sent to his wife, Linda, and to Dr. and Mrs. W. R. Brooksher, Sr.

All resolutions were unanimously adopted by the House of Delegates.

Dr. Joe Verser presented the following report of the Council meetings held during the convention:

REPORT OF COUNCIL

The Council of the Arkansas Medical Society met on Sunday, April 29th, at the Arlington Hotel and transacted business as follows:

1. Mr. Oliver Field and Mr. A. M. Edwards, both of the American Medical Association, spoke briefly on problems of legislation and of medical licensure and quackery;
2. Approved affiliate memberships as follows:

Retirement

A. J. Souter	E. J. Brown
H. K. Carrington	Howell W. Brewer
James R. Williams	H. A. Murphy
Paul Jeffery	W. H. Bruce
A. V. Adams	W. T. Lowe
Jesse Stevenson	Virgil Payne
H. C. Dorsey	Harold N. Miller
H. L. Boyer	W. M. McRae
Joseph Delaney	James E. Jones
W. A. Fowler	Shelby Atkinson
Allan A. Gilbert	

Disability

C. A. Churchill	Ralph A. Law
J. D. Riley	James D. Hayes
Bryce Cummins	Thomas E. Burgess
S. T. W. Cull	

Military Service

Hal R. Black	Robert M. Stainton
Roy C. Brinkley	George F. Stroope
Julian L. Foster	Lawrence L. Thompson
Joe H. Hardin	Joseph Ward
Bill F. Hefley	Maxwell G. Chaney
Marion J. Henry	Wayne B. Glenn
G. L. Hollister	James M. Kolb, Jr.
William S. Lewis	G. L. Duckworth
N. W. Riegler, Jr.	Charles Hicks

Victor Ferrari
Wood C. Hiatt

Allen G. Talbot

Residency Training

L. K. Williams	Robert Whitehead, Jr.
W. E. Harville	C. W. Peebles
J. Harry Hayes, Jr.	Sidney W. Arnold
H. Jennings Douglass	Edith Irby Jones
Paul Means	John P. Thompson

3. Approved life memberships as follows:

A. C. Linton	C. B. Dixon
Garland D. Murphy, Jr.	J. E. McGuire
H. J. Hall	
4. Nominated Wendell Ward of Fayetteville and Rhys Williams of Harrison for presentation to the Governor for selection to fill the vacancy on the State Cancer Commission.
5. Nominated George Talbot of the Fourth District and Alan Cazort of the Eighth District for positions on the Arkansas State Arbitration Commission.
6. Voted to increase the contribution to the Arkansas Chapter of the Student American Medical Association to \$225 for travel to the national convention of that group.
7. Appointed a committee to investigate the feasibility of having a state-wide television program following soon after President Kennedy's television show to counteract the President's propaganda for social security health care of the aged.
8. Directed the Executive Secretary to write the American Medical Association recommending Dr. A. S. Koenig and Dr. James M. Kolb for AMA Council and committee appointments.
9. Voted to expunge the record of the March 25th Council meeting concerning the election of delegate and alternate delegate to the American Medical Association.
10. Directed that a wire of congratulations be sent to Congressman Wilbur Mills for having received the American Good Government Award in Washington on April 29th.
11. Voted to commend Alfred Kahn, Editor of the Journal of the Arkansas Medical Society, for his excellent work and continuing improvement of the Journal, both in appearance and content.

The Council met on April 30th and transacted business as follows:

1. Received a report from Dr. Martin Eisele that the Garland County Medical Society had voted to recommend to the House of Delegates that the Medical Education Foundation for Arkansas continue to receive the \$5.00 of dues now earmarked for that organization and that State Medical Society dues be increased \$10.00.
2. Dr. Henry Hollenberg reported for his special committee to make recommendations on the functioning of the Professional Relations Committee. They suggested:
 - (a) That the State Professional Relations Committee be comprised only of the chairman of each councilor district committee;
 - (b) That the State Committee meet semi-annually to discuss general procedures in Medicare and medico-legal affairs and that this committee be available for special call meetings on grievances not settled at the district level;
 - (c) That the Professional Relations Committee con-

- sider the advisability of appointing substantial citizens as lay members to sit in on grievance cases;
- (d) That the Committee study plans and meet with lawyers concerning possible joint activities, but make no commitments without the approval of the Council;
- (e) That the Committee work closely with the Public Relations Committee with regard to their overlapping functions;
- (f) That appointments to the Committee be carefully considered by the councilors to insure obtaining physicians who are willing to work, mature in judgment, and dedicated to the ideal of every physician rendering the finest medical care of which he is capable and conscientious in applying principles of medical ethics for the good of all.

3. Upon the request of the State Health Officer, Dr. Heron, the Council voted to appoint a committee to work with him to draw up proposed legislation to regulate the uses and sources of ionizing radiation.
1. Received from the Insurance Committee a proposal from the St. Paul Mutual Insurance Company for a group liability policy. Because the Council had not had time to review the proposal it was voted to take no action until a study of the policy and its possible effect on present insurance can be made.
5. Voted to run the AMA Annis film on a state-wide TV network on Class A time as soon as possible after President Kennedy's Senior Citizens rally on TV.
6. Appointed a committee composed of Dr. Burton, Dr. Whittaker, Dr. Eisele, Dr. Norton, and Mr. Schaefer to implement above motion.
7. Accepted with thanks the offer of the Arkansas Blue Cross-Blue Shield to arrange and pay for newspaper space to advertise the above mentioned TV program.
8. Voted to recommend to the House of Delegates approval of the Joint National Blue Shield-AMA sponsored program for people over 65 with limited income.
9. Approved the report of Bill Dave Stewart's special committee recommending that the funds in the Medical Education Foundation for Arkansas Account should be kept intact for the present and that the present members of the Board of Trustees of the Foundation should continue in control of these funds.
10. Requested the resolutions committee to write a resolution of thanks and commendation to Mr. Karr Shannon of the Arkansas Democrat for his excellent columns on health care of the aged.

The Council met on May 1 and transacted the following business:

1. Appointed a committee to investigate whether or not a history of the Arkansas Medical Society exists and make recommendations to the Council. Dr. James M. Kolb, Dr. Euclid Smith, and Dr. W. H. Mock were appointed to the committee.
2. Voted to request the councilors to see if Little River and Madison Counties, with only two members each, should be continued as individual societies or if the members should be asked to affiliate with neighboring county societies.
3. Requested the Constitutional Revisions Committee to investigate changing the constitution to allow interns and residents to be members of the State and county societies without paying dues.
4. Referred to the Traffic Safety Committee a project to promote the use of auto safety belts.

5. Requested the resolutions committee to draw up a resolution of sympathy to Dr. and Mrs. W. R. Brooksher over the sudden death of their son, Dr. W. R. Brooksher, Jr., and expressing the Council's regret that Dr. Brooksher, for the first time in many years, was not present at its meetings.

Verser moved adoption of the report, second by Fowler. A. S. Koenig was requested to explain the provisions of the Joint National Blue Shield-AMA sponsored program for people over 65 with limited income and there was some discussion, both pro and con, of the "service contract" provision of the program. Thomas expressed his personal thanks to Mr. Butler, Dr. Koenig and the local Blue Cross-Blue Shield for their work in presenting a program acceptable to the Medical Society. By standing vote, the House approved the report of the Council by a vote of 39 to 13.

Upon motion of Kolb and Oates, officials of the Society were directed to implement the recommendations of the Reference Committee concerning MEFFA if that report conflicted with the report of the Council.

Hugh Edwards reported that Dr. Ed. D. McKnight had been selected by members of the Second Congressional District to succeed himself as a member of the Arkansas State Board of Health and moved that the House approved the nominations. Upon second by Thibault, the House so voted.

Bill Dave Stewart reported that Dr. Wm. A. Snodgrass had been selected by members of the Fifth Congressional District to succeed himself as a member of the Arkansas State Medical Board and moved that the House approve the nomination. Upon second by Ellis, the House so voted.

Speaker Hyatt requested motion and discussion regarding meeting place for the 1964 Annual Session. Martin Eisele, speaking for the Garland County Medical Society, invited the Society to Hot Springs for the 1964 meeting. Upon motion of Verser and Ellis, the House unanimously accepted the invitation.

L. E. Drewrey of Ouachita County announced that he will act as voluntary chairman of a drive for contributions for the Arkansas Breakfast so that the 1962 breakfast would not have to be cancelled.

The House adjourned at 1:00 p.m.

Registration

**86th Annual Session of the
Arkansas Medical Society**

Physicians	461
Medical Students	11
Auxiliary Members	13
Nurses and student nurses	51
Exhibitors	80
Misc.	16
TOTAL	632

OFFICERS OF THE ARKANSAS MEDICAL SOCIETY 1962-1963

President	H. King Wade, Jr., 231 Central, Hot Springs
President-elect	Joe Verser, Harrisburg
First Vice President	Henry Hollenberg, Waldon Building, Little Rock
Second Vice President	Berry Moore, Sr., 1081½ No. Washington, El Dorado
Third Vice President	James W. Branch, Hope
Secretary	Elvin Shuffield, Donaghey Building, Little Rock
Secretary Emeritus	W. R. Brooksher, 318 North Greenwood, Fort Smith
Treasurer	Ben N. Saltzman, Mountain Home
Speaker, House of Delegates	C. Lewis Hyatt, Monticello.
Vice Speaker, House of Delegates	J. P. Price, Jr., Monticello
Journal Editor	Alfred Kahn, Jr., 1300 West Sixth, Little Rock
Delegates to AMA	J. M. Kolb, Clarksville; Jack Kennedy, Arkadelphia
Alternate Delegates to AMA	C. C. Long, Ozark; Alfred Kahn, Jr., Little Rock
Executive Secretary	Mr. Paul C. Schaefer, P.O. Box 1345, Fort Smith

EXECUTIVE COMMITTEE OF THE COUNCIL

Chairman of the Council	H. W. Thomas, Dermott
President	H. King Wade, Jr., 231 Central, Hot Springs
President-elect	Joe Verser, Harrisburg
Secretary	Elvin Shuffield, Donaghey Building, Little Rock

PROCEEDINGS

COUNCILORS

District	Councilor Term expires '63	Councilor Term expires '64	Counties in District
1.	Eldon Fairley Osceola	Paul Ledbetter Jonesboro	Clay, Craighead, Crittenden, Fulton, Greene, Lawrence, Mississippi, Poinsett, Randolph, and Sharp
2.	Paul Gray Batesville	Hugh R. Edwards Searcy	Cleburne, Conway, Faulkner, Independence, Izard, Jackson, Stone, and White
3.	Paul Millar Stuttgart	G. A. Sexton Forrest City	Arkansas, Cross, Lee, Lonoke, Monroe, Phillips, Prairie, St. Francis, and Woodruff
4.	T. E. Townsend 1310 Cherry Pine Bluff	H. W. Thomas Dermott	Ashley, Chicot, Desha, Drew, Jefferson, and Lincoln
5.	George C. Burton Med. Arts Bldg. El Dorado	John L. Ruff Magnolia	Bradley, Calhoun, Cleveland, Columbia, Dallas, Ouachita, and Union
6.	K. H. Kemp 408 Hazel Texarkana	John P. Wood Mena	Hempstead, Howard, LaFayette, Little River, Miller, Nevada, Pike, Polk, and Sevier
7.	Jack Kennedy Arkadelphia	Martin Eisele 101 Whittington Hot Springs	Clark, Garland, Grant, Hot Spring, Montgomery and Saline
8.	Bill D. Stewart Waldon Building Little Rock	Joe Norton Donaghey Building Little Rock	Pulaski
9.	S. Applegate Springdale	Ross Fowler Harrison	Baxter, Benton, Boone, Carroll, Madison, Marion, Newton, Searcy, Van Buren, and Washington
10.	C. C. Long Ozark	L. A. Whittaker 621 South 21st Fort Smith	Crawford, Franklin, Johnson, Logan, Perry, Pope, Scott, Sebastian and Yell

1962 OFFICERS—COUNTY MEDICAL SOCIETIES
ARKANSAS MEDICAL SOCIETY

ARKANSAS—Pres., T. S. Van Duyn, Stuttgart
Secy., Lucille Champion, Stuttgart

ASHLEY—Pres., R. L. Salb, Crossett
Secy., Billy J. Jordan, Crossett

BAXTER—Pres., John F. Guenther, Mountain Home
Secy., Ben N. Saltzman, Mountain Home

BENTON—Pres., Billy Hall, Gravette
Secy., E. N. McCollum, Decatur

BOONE—Pres., Rhys Williams, Harrison
Secy., Robert H. Langston, Harrison

BRADLEY—Pres., Wm. C. Whaley, Warren
Secy., George F. Wynne, Warren

CARROLL—Pres., Wayne P. Jones, Berryville
Secy., Oliver Wallace, Green Forest

CHICOT—Pres., Major E. Smith, Dermott
Secy., Thomas C. Wilson, Dermott

CLARK—Pres., P. R. Anderson, Arkadelphia
Secy., Robert W. Hunter, Arkadelphia

CLEBURNE—Pres., H. K. Baldridge, Heber Springs
Secy., W. M. Wells, Heber Springs

COLUMBIA—Pres., J. Fred Lee, Magnolia
Secy., John L. Ruff, Magnolia

CONWAY—Pres., H. E. Hyder, Morrilton
Secy., H. B. White, Morrilton

CRAIGHEAD-POINSETT—Pres., Horace C. Barnett,
Jonesboro
Secy., J. H. McCurry, Cash

CRAWFORD—Pres., O. J., Kirksey, Mulberry
Secy., J. N. Thicksten, Alma

CRITTENDEN—Pres., Milton Lubin, Turrell
Secy., James R. Fall, West Memphis

CROSS—Pres., Robert A. Hayes, Wynne
Secy., Vance J. Crain, Wynne

DALLAS—Pres., Harry Atkinson, Fordyce
Secy., Carl Adams, Carthage

DESHA—Pres., Lee Parker, McGehee
Secy., Swan B. Moss, McGehee

DREW—Pres., J. P. Price, Monticello
Secy., C. Lewis Hyatt, Monticello

FAULKNER—Pres.,
Secy., Robert L. Taylor, Conway

FRANKLIN—Pres., Wm. C. Hensley, Charleston
Secy., David L. Gibbons, Ozark

GARLAND—Pres., Thomas E. Burrow, 236 Central,
Hot Springs
Secy., James French, 101 Whittington, Hot Springs

GRANT—Pres., Curtis B. Clark, Sheridan
Secy., Miles F. Kelly, Sheridan

GRENE-CLAY—Pres., Earle D. McKelvey, Paragould
Secy., Sam Watson, Cardwell, Missouri

PROCEEDINGS

- HEMPSTEAD—Pres., James W. Branch, Hope
Secy., Forney G. Holt, Hope
- HOT SPRING—Pres., Claude F. Peters, Malvern
Secy., C. Randolph Ellis, Malvern
- HOWARD-PIKE—Pres., John Wesson, Nashville
Secy., U. Lee Smith, Nashville
- INDEPENDENCE—Pres., Jimmie Lytle, Batesville
Secy., Alfred Hathcock, Batesville
- JACKSON—Pres., John Wright, Newport
Secy., John Ashley, Newport
- JEFFERSON—Pres., Wm. R. Meredith, 917 Cherry,
Pine Bluff
Secy., C. D. Burroughs, 1108½ Poplar, Pine Bluff
- JOHNSON—Pres., G. R. Siegel, Clarksville
Secy., W. R. Scarborough, Clarksville
- LAFAYETTE—Pres., Willie J. Lee, Stamps
Secy., Charles Cross, Stamps
- LAWRENCE—Pres., James H. Hickman, Walnut Ridge
Secy., Ralph Joseph, Walnut Ridge
- LEE—Pres., Dwight Gray, Marianna
Secy., F. S. Dozier, Marianna
- LINCOLN—Pres., James Freeland, Star City
Secy., Richard C. Petty, Star City
- LITTLE RIVER—Pres., N. W. Peacock, Jr., Ashdown
Secy., N. W. Peacock, Jr., Ashdown
- LOGAN—Pres., James T. Smith, Paris
Secy., Charles McD. Smith, Paris
- LONOKE—Pres., Henry H. Good, England
Secy., B. E. Holmes, Lonoke
- MADISON—Pres., Austin Smith, Huntsville
Secy., Ivan Box, Huntsville
- MILLER—Pres., Charles Leslie, 315 East 5th, Texarkana
Secy., E. H. Wicker, P.O. Box 1843, Texarkana
- MISSISSIPPI—Pres., Hunter Sims, Jr., Blytheville
Secy., Eldon Fairley, Osceola
- MONROE—Pres., N. C. David, Brinkley
Secy., J. P. Williams, Jr., Brinkley
- NEVADA—Pres., L. J. Harrell, Prescott
Secy., Charles A. Hesterley, Prescott
- OUACHITA—Pres., R. C. Lewis, Camden
Secy., R. B. Robins, Camden
- PHILLIPS—Pres., Charles P. McCarty, Helena
Secy., Wm. B. Connolly, Helena
- POLK—Pres., David Hefner, Mena
Secy., Henry N. Rogers, Mena
- POPE-YELL—Pres., Douglas Lowrey, Russellville
Secy., W. E. King, Russellville
- PULASKI—Pres., John McC. Smith, 4000 Woodlawn,
Little Rock
Recording Secy., W. M. Hamilton, Donaghey Building,
Little Rock
Executive Secy., Paul Harris, 510 Pulaski Street,
Little Rock
- RANDOLPH—Pres., Thomas B. DeClerk, Pocahontas
Secy., W. W. Scott, Pocahontas
- SALINE—Pres., H. B. Thorn, Jr., Benton
Secy., J. L. Martindale, Benton
- SCOTT—Pres., Harold B. Wright, Waldron
Secy., James A. Jenkins, Waldron
- SEARCY—Pres., John H. Williams, Marshall
Secy., John A. Hall, Clinton
- SEBASTIAN—Pres., Harley Darnall, 500 Lexington,
Fort Smith
Secy., C. F. Boulden, 100 South 14th, Fort Smith
- SEVIER—Pres., Charles Jones, DeQueen
Secy., Rodger C. Dickinson, DeQueen
- ST. FRANCIS—Pres., A. M. Bradley, Forrest City
Secy., C. E. Crawley, Forrest City
- UNION—Pres., George Burton, 430 South West Avenue,
El Dorado
Secy., Grady Hill, 430 South West Avenue, El Dorado
- WASHINGTON—Pres., Wendell Ward, 1018 Sunset,
Fayetteville
Secy., Charles Edmondson, Springdale
- WHITE—Pres., Harold Short, Beebe
Secy., Hugh R. Edwards, Searcy
- WOODRUFF—Pres., Fred C. Inman, McCrory
Secy., C. E. Dungan, Augusta



MRS. FRANK PADBERG
Little Rock

President, Woman's Auxiliary to the Arkansas Medical
Society, 1962-1963

38th Annual Session
WOMAN'S AUXILIARY
to the
ARKANSAS MEDICAL SOCIETY
Arlington Hotel Hot Springs
April 29 - May 2, 1962

PROCEEDINGS

The Arlington Hotel in Hot Springs was headquarters for the 38th annual session of the Woman's Auxiliary to the Arkansas Medical Society April 29 through May 2, 1962.

Garland County Auxiliary served as hostess for the convention under the leadership of Mrs. Carl Parkerson, president, Mrs. Robert McCrary, convention chairman, and Mrs. King Wade, co-chairman, all of Hot Springs.

Mrs. Hershel Wilmoth, president of the state auxiliary, and Mrs. Frank Padberg, president-elect, entertained their respective board members at coffee Sunday afternoon in the North Parlor of the Arlington.

Presiding at the business sessions of the convention was Mrs. Wilmoth, who conducted a pre-convention board breakfast Monday morning before officially calling the 38th annual session of the Auxiliary to order. Special guests at the convention included Mrs. Roy A. Douglass, president of Southern Medical Auxiliary, who was honor guest at Monday's luncheon at The Vapors; Mrs. Harlan English, president of the Woman's Auxiliary to the American Medical Association, honor guest and speaker at Tuesday's luncheon at the Round Table; and the Rev. Paul D. McCleave, D.D., director of the Department of Medicine and Religion of the AMA, who spoke at Monday's luncheon. Other guests who brought greetings to convention delegates and guests were Dr. Wm. A. Snodgrass, president of the Arkansas

Medical Society; and Mr. Paul C. Schaefer, executive secretary of the Arkansas Medical Society.

An added treat at Monday's luncheon was the showing of spring fashions by the Eleanor Harris Shop of Hot Springs.

Although rain spoiled the fun, doctors and wives gathered at the Arlington Pool-Deck Monday evening for cocktails before being forced inside, and before going "out on the town" on their own. The setting was beautiful and ideal, but not so the weather.

Tuesday's events included the joint memorial service with the Arkansas Medical Society; luncheon at the Round Table with Mrs. English the honor guest and luncheon speaker; and the banquet with the Medical Society that evening in the main dining room of the Arlington.

New Auxiliary officers installed by Mrs. English at the Tuesday luncheon are: President, Mrs. Frank Padberg of Little Rock; President-elect, Mrs. Glen Keller, Jonesboro; First Vice-President (Northeast District), Mrs. J. B. Elders, Walnut Ridge; Second Vice-President (Southeast District), Mrs. John M. Smith, Little Rock; Third Vice-President (Southwest District), Mrs. James W. Branch Sr., Hope; Fourth Vice-President (Northwest District), Mrs. Charles F. Wilkins, Russellville; Recording Secretary, Mrs. J. R. Pierce Jr., Pine Bluff; and Treasurer, Mrs. W. Myers Smith, Little Rock.



EDITORIAL

ORGANIZED MEDICINE AND PUBLIC RELATIONS

Paul Harris*

IT IS BECOMING INCREASINGLY more evident that if the medical profession is to be able to meet the challenge of government in health care matters, the tools which are already available — but often overlooked — must be used at every opportunity. The need for this effort is evidenced by the results of a recent survey which was conducted for AMA by an independent firm. Included in the results of this survey is a conclusion which was drawn that indicated a lot of Americans feel that physicians are losing their leadership in health care matters to government. In the same survey, the medical profession was charged by the public of failure to communicate effectively on a personal level with patients. This, according to the surveyers, leads to complaints that the doctors are cold, indifferent to people's personal problems both medical and financial; that they don't care about people's feelings, that they make people wait too long. Medicine must through an informed public take the offensive to turn the leadership tide back to the physician through public relations.

While the idea of planned public relations is a relatively new thing as related to organized medicine, it has played a major role in all important events since the beginning of history. The rapid rate at which professional public relations persons are being sought by medical societies was evidenced at the recent AMA Public Relations Institute held in Chicago where the 400 in attendance represented only a fraction of the

medical societies who have full time executive secretaries devoting at least a part of their time to public relations for their respective societies.

There seems to be no problem in having material available to tell medicine's side of the story, but rather the problem seems to be that the story just isn't told. The size of a county medical society often precludes a paid staff whose responsibility it is to tell the public medicine's side of the story, but no county medical society is too small to have a story that could and should be told. This could be done through a committee or even one member charged with informing the public through the local news media what the doctors in the community have done for the community in the area of service. For instance, a news release giving the aggregate of the amount of free service during any given period of time would be an eye-opener for the public. Indeed, it would be probably an eye-opener to the society members themselves. This added to an account of the number of hours spent on community projects would likely show that the average physician contributes more to the betterment of his community than those in other professions who are more often credited with it.

The person who is charged with the responsibility for public relations for any size medical society will find the same opportunities in his community that are found anywhere in the country. Possibly one of the first and certainly one of the most obvious channels of informing the public is through the local newspaper. The relationship of the medical society with the editor

*Executive Secretary, Pulaski County Medical Society
510 Pulaski Street, Little Rock, Arkansas

works two ways. Perhaps the medical society has a story of interest to the community relative to a particular health problem. The local editor wants the story. The manner in which the story is given — or in some cases of necessity not given — is of the utmost importance because a short time later the medical society will likely have a story they WANT to tell. Points of importance to remember for good press relations include being cooperative, truthful, and courteous. The status of the society is elevated too when the editor is not asked for favors and when favoritism is not evidenced by giving information to one paper and withholding it from another.

Equally as important today are the media of radio and television. Virtually the same rules for newspapers hold true for radio and television. A wealth of material for presentation is made available on loan from AMA. Radio and television stations are giving bigger "play" to medical science news than ever before because of an increasing public interest. Here is an opportunity of which all medical societies can take advantage.

The problem of creating public relations is one that has been undertaken by many medical societies in the country. It has been suggested that every society should conduct at least one positive public service campaign each year, whether it be a health fair, immunization campaign or a similar effort to solve a local health problem.

"Public relations" has been described as the "face you show the world". If this description is true the same "face" must be shown in every area where medicine contacts the public. This apparently is particularly true in the area of patient-physician relationship. The question is summed up in the Public Relations Manual of AMA in this manner, "Americans crave service from a personal physician. In this area some cracks appear in the mirror reflecting the doctor image. Though physicians rate higher than dentists or lawyers on ethics and dedication, MD's are more often criticized in areas of public service. Analysis of the opinion survey shows that the physician's own attitudes and motives along with the efficiency with which he runs his office are keys to service attitudes. Consequently, every physician should be aware of his own personal responsibility not only for his personal public relations but for the public relations of the entire profession."

Resolution

At the monthly meeting of the Craighead-Poinsett Medical Society at Jonesboro, Arkansas held on the fourth day of April, 1962, the following Preamble and Resolutions were adopted:

WHEREAS, the Power greater than ourselves has deemed it necessary to take from us one of our faithful fellow physicians, we, the members of the Craighead-Poinsett Medical Society, mourn the loss of Willard E. Berry, M.D. Dr. Berry was one of our most esteemed leaders and during his lifetime was often chosen by our society as an officer and for other positions of trust. He was a member of the Craighead-Poinsett Medical Society, the Arkansas Medical Society, and the American Medical Association; and

WHEREAS, Willard E. Berry, born in Santa Ana, California, graduated from Stanford University in 1926, and graduated from the University of Tennessee School of Medicine in 1930, interned at the Oklahoma State University Hospital, practiced general medicine in Trumann, Arkansas from 1931 to 1942, served in the Armed Forces of the United States of America from 1942 to 1946, and since discharge from the Armed Services has practiced general medicine in Jonesboro, Arkansas, and has served his community faithfully not only as a physician but also through public service to his fellowmen;

THEREFORE, Be It Resolved, that the Medical Staff of St. Bernard's Hospital express to his family the esteem in which he was held by the entire community and the heartfelt loss that has been sustained.

BE IT FURTHER RESOLVED, that the devotion of Willard E. Berry to his profession, his patients, and his fellow man, will remain as an inspiration to the members of the Craighead-Poinsett Medical Society.

BE IT FURTHER RESOLVED, that a copy of this resolution be made a matter of record in the minutes of the Craighead-Poinsett Medical Society, that a copy be sent to his family and a copy sent to the Journal of the Arkansas Medical Society.

H. C. Barnett, M. D.,
President
B. P. Raney, M. D.,
Secretary



New Program to Seek Better Methods Of Medical Education

EVANSTON, ILL.—A program to help intensify the teaching effectiveness of medical educators thereby increasing the ability of medical students to learn has come into being by a grant to the Association of American Medical Colleges.

According to Dr. Ward Darley, Executive Director of AAMC, the \$300,000 five-year grant was made by the Carnegie Corporation of New York as part of its continuing interest in higher education.

Dr. Darley said that the AAMC has organized an "educational division" within the association to implement the program which will emphasize research in medical teaching and learning.

Dr. Paul J. Sanazaro, Associate Professor of Medicine, University of California Medical Center, San Francisco, has been named to head the AAMC's new educational division. Dr. Sanazaro received his M.D. degree from the Univ. of Calif. in 1946.

The division will have as one of its goals that of delving into patterns of teaching and learning as applied to medical education. The information and data thus gained will be distributed to all medical colleges through forums and seminars and the association's publication, *Journal of Medical Education*, he pointed out.

Dr. Darley said that the AAMC Education Division will work with medical schools to initiate specific study and research with a view to stimulating development of a more critical analysis of fundamental teaching and learning by way of psychological measurements.

"The intent of the division is not to standardize or to foster uniformity but rather to provide efficient access to the best medical teaching methods available. One very important long-term benefit AAMC expects will be the incorporating of the

best thinking of educators and behavioral scientists into an available pool of knowledge.

"The concept of the educational division and its work can have a far-reaching influence on the general health of the nation—and the world, for that matter—because graduating doctors will be better medical scholars as a result of better teaching methods," Dr. Darley said.

Sharp County Has Medical Clinic Month

Sharp County Judge R. L. Higginbottom set April as Sharp County Medical Clinic Month throughout the county. The Sharp County Jaycees held a kick-off barbecue and dance at Mrs. Brown's barbecue in Woodland Hills in Hardy. Sharp County has been without medical facilities for some time. The nearest doctor is in Mammoth Spring, about 20 miles away.

Dr. Daniels Gives Rx for Good Health

Dr. Arthur S. Daniels, president of the American Association for Health, Physical Education and Recreation addressed an audience of physical educators as part of the AAHPER Southern District convention in Little Rock. Dr. Daniels tries to set a good example. He uses 20 minutes each day in a period of physical exercise, which keeps him fit at the age of 56. "Every businessman can afford 20 minutes out of their day, early in the morning," he said. Daniels believes that business people can stand the stress and tension of the business world much better if they are in good physical condition. "It makes businessmen and women more effective in everything they do," he said. Dr. Daniels takes time from his professional duties to perform a ritual of exercises each morning which includes a two-mile bicycle ride. He begins the ritual with some loosening exercise—arm and leg motions—and then takes his bicycle

ride. Next the doctor does a series of exercises with 60 pounds of weights. Then he does 35 to 50 sit-ups. You can get a lot of benefit from 20 minutes, he said.

Medic Official Opposes Bill

Paul C. Schaefer of Fort Smith, executive secretary of the Arkansas Medical Society, has told the state's doctors they must write Rep. Wilbur D. Mills, immediately in opposition to the King-Anderson bill to tie health care to Social Security and finance it by an increase in Social Security taxes.

Schaefer told doctors in a letter that Mills "must have mail from you to keep members of the House Ways and Means Committee from going over to the other side."

He said the lawmakers "are having an awful lot of pressure put on them from the administration and they need evidence of opposition."

Mr. Schaefer said 98 per cent of Arkansas' 1,564 medical doctors are against the bill.

Medical Group Holds One-Day Meeting In Hot Springs

The spring quarterly session of the Southwest Medical, Dental and Pharmaceutical Association was held at the National Baptist Building in Hot Springs. Dr. G. U. Jamison, Texarkana, Texas, president of the group presided over the one-day session. Approximately 90 doctors, dentists, pharmacists, their wives and guests attended. The morning session was devoted to scientific sessions and the afternoon was left open for delegates to attend the races. The Southwest area includes all of Arkansas and border areas of Texas and Oklahoma. Appearing on the program were Dr. C. A. Flowers, Dr. Jesse Leach, Dr. Cane Hyman, and Dr. T. J. Collier served as host to the meeting and has served the group as program co-ordinator for the past 12 years.

VA Has Institute on Psychiatry and Neurology

Workshops in clinical psychology, social work service and psychiatric nursing were held at Fort Roots Hospital, North Little Rock. They were related meeting in advance of the 14th annual Institute in Psychiatry and Neurology which were held later that same week.

Dr. Werner W. Boehm, professor of social work at the University of Minnesota conducted the

workshop in social work service along the theme of "The Casework Method as a Means of Intervention in Social Functioning." Sister Charles Marie, dean of the school of nursing, Catholic University of America, Washington, D.C. lead the workshop in psychiatric nursing. She discussed "The Personal Component in Nurse-Patient Relationships" and leading the workshop in clinical psychology was Dr. Edwin Schneidman, department of human relations, Harvard University. Drs. W. K. Rigby and M. E. Bunch also participated. Dr. Rigby is a VA area chief of psychology service and Dr. Bunch is chairman of the department of psychology at Washington University, St. Louis.

A number of distinguished scientists were on the program of the institute including, Dr. Walter Barton, president of the American Psychiatric Association; Dr. William S. Middleton, Washington, chief medical director of the Veterans Administration; Dr. Robert G. Heath, chairman of the department of psychiatry and neurology at Tulane University, Dr. Jack P. Whisnant, Mayo Clinic neurologist; Dr. Lewis L. Robbins, medical director of Hillside Hospital, Glen Oaks, New York; Dr. Lothar B. Kalinowsky, New York psychiatrist; Dr. Joseph B. Bounds, Roanoke VA Hospital and many others.

Seminar on Athletic Injuries

A seminar on the Prevention and Management of Athletic Injuries for coaches, athletes, and physicians of high schools and colleges of Arkansas was held on Saturday, September 12th at the Ouachita Baptist College. The program was co-sponsored by the Clark County Medical Society and the Henderson State Teachers College, with Dr. J. W. Kennedy as moderator. Participating in the seminar were: Dr. D. D. McBrien, President, Henderson State Teachers College; Dr. Ralph Phelps, President, Ouachita Baptist College; Mr. Cliff Shaw, A.I.C., Southwest Conference Official; Dr. Coy C. Kaylor, University of Arkansas team physician, Fayetteville; Dr. Stuart B. McConkie, Hot Springs; Dr. Robert Watson, Little Rock; and Mr. Bill Ferrell, Trainer, University of Arkansas, Fayetteville.

Meeting of the Southwestern Chapter of the Society of Nuclear Medicine

About 200 members had their first gathering in Little Rock in March, 1962. It featured physi-

cians and research scientists from throughout the Southwest who use radiation isotopes and radium in medical treatment and diagnosis. Principal speaker at a banquet which climaxed the first day's activities was Dr. John Nash Ott of Lake Bluff, Ill., a well-known authority on time lapse photography.

Medical Self-Help Training in Conway

The first course of a new program for teaching families how to preserve life and health under major disaster and survival conditions was held in the Men's Bible Classroom of the First Methodist Church on April 23, 24 and 25, 1962. Mrs. Jim Crafton, county health nurse, Miss Claudia Kuykendall of the American Red Cross or Mrs. Beatrice Thomas, Civil Defense Office, may be contacted for further information.

29 Patients Go Through Clinic

Twenty-nine patients who ranged up to 21 years of age were seen at the new rheumatic fever clinic in operation at the City and County Health Unit in El Dorado, Wednesday, March 21, 1962. A patient must be referred by his own physician to the City-County Health Center to be eligible for this care. Ten Charity League workers assisted the two physicians and regular nursing staff.

An increasing number of inquiries by patients in Arkansas has prompted Southwest Blood Banks to remind the medical profession of a program designed to reduce transfusion costs and eliminate the need for replacing blood.

The program is an outgrowth of Southwest Blood Service Plan, previously offered as a service of Southwest Blood Banks, the nation's largest medically-sponsored, not-for-profit, self-supporting blood banking system. The service has been ruled to be an insurance program, and in order to continue providing protection to some 250,000 members, a subsidiary company, Blood Service Plan Insurance Company, was incorporated, with Southwest acting as general agent.

Although Southwest is noted throughout Arkansas for blood banking service to hospitals, the insurance aspect is not so well known. The plan is designed to cover blood bank charges for whole blood, plasma or special whole blood preparations for a small annual premium, or donation of a pint of blood.

For your patients' information, details as to benefits and limitations of the program are available at Southwest Blood Bank of Arkansas at Little Rock and Fort Smith.

Old Age Prescription Is Offered by Physician

A well-known Arkansas physician looked back on 40 years of medical practice and offered a cure for the problems and frustrations of old age. Dr. L. H. McDaniel of Tyronza said shower the aged with love, interest and respect and "watch them revive and blossom as a fading flower after a life-giving rain."

Dr. McDaniel said when his prescription is followed "you will discover so often that the oldster who a short time before seemed a cantankerous, irritating 'has-been' has now become a vital human being, truly worthy of love and respect."

Dr. McDaniel suggested that one of life's purposes is to benefit one's fellowman, and in no area will rewards be greater "than in bringing love and understanding to those who soon will go to meet their Maker."

Medical Group Elects Dr. Eva Dodge

Dr. Eva Dodge, a member of the University of Arkansas Medical School staff, has been elected president of the Pan American Medical Women's Alliance at the group's Eighth Congress at Manizales, Colombia. The association is composed of women physicians from North, Central and South America.

The Month in Washington

Washington, D.C. — Supporters of the King-Anderson bill stepped up their campaign as the House Ways and Means Committee neared a showdown vote on the legislation which would provide limited health care for the aged under social security.

The Kennedy Administration took over the leadership in the drive with the President accepting an invitation to address a rally in Madison Square Garden, New York City, on May 20 sponsored by the National Council of Senior Citizens for Health Care Through Social Security.

The Administration also was organizing citizens' committees in individual states to whip up grass roots pressure for the bill. The President was asking prominent persons, such as former Democratic Gov. and U.S. Sen. Edwin C. Johnson in Colorado, to head such committees.

After personally pledging their support to the legislation in a White House call on the President, 27 physicians formed The Physicians Committee for Health Care for the Aged Through Social Security headed by Dr. Caldwell B. Esselstyn of New York City, president of the Group Health Association of America. Most of the 27 are educators, hospital administrators or in other administrative posts. A majority are members of the A.M.A.

Pointing out that the White House was able to muster only an insignificant number of doctors for the King-Anderson bill, an A.M.A. spokesman said at least 90 per cent of the nation's 261,000 physicians are opposed to the legislation.

The intensified Administration drive made it imperative that physicians and other opponents of the Social Security approach go all-out at this time in their efforts against the King-Anderson bill.

A vote was expected in the Ways and Means Committee in May or June at the latest.

Sen. Robert S. Kerr (D., Okla.), reaffirmed his opposition to the King-Anderson bill but said he expected it would come up on the Senate floor for a vote. He said he and Rep. Wilbur D. Mills (D., Ark.), chairman of the Ways and Means Committee, were conferring on legislation that would expand the Kerr-Mills program—which has the wholehearted support of the A.M.A.—to cover more aged persons.

Under the leadership of Rep. William E. Miller (R., N.Y.), who is also chairman of the Republican National Committee, some Republican Congressmen got behind the so-called Bow bill which would permit aged persons to reduce their federal income taxes by up to \$125 a year to cover health insurance premiums. The government also would issue to persons 65 years and older who pay no income taxes, or less than \$125, a certificate with which to purchase health insurance.

* * *

The Public Health Service licensed Type III oral poliomyelitis vaccine but left the decision to local health officials and physicians as to whether the oral or the Salk killed vaccine, or both, would be used this year.

Types I and II oral polio vaccine had been licensed last year and Type III was the last of the series needed for protection against all three types of polio.

Production and availability of the oral vaccine

will be a major factor in the extent of its use this year.

The PHS conclusion on local immunization programs was recommended by a special advisory committee to the Surgeon General and was in line with a policy adopted by the A.M.A. House of Delegates at Denver, Colo., last November.

The PHS gave five guidelines for the local programs:—

1. Organizers of community drives must be assured that adequate supplies are available before such programs are undertaken.

2. All persons in those groups selected by the community should receive vaccine regardless of past polio immunization history.

3. In general, vaccination programs using either vaccine must have careful planning and achieve a maximum of support from official and voluntary health and medical groups.

4. The plans should assure the ready availability of the vaccine in all areas of the community and for all persons within the selected target groups. Special emphasis must be directed to those areas and population groups having the lowest levels of immunization. Community-wide programs should achieve the immunization of the maximum number of persons, but no less than 80 per cent of the preschool children in all socio-economic groups.

5. A continuing program of immunization of infants should be incorporated as an essential feature of all organized community-wide programs.

The PHS also recommended that the three types of oral vaccines be administered sequentially, each in monovalent form at intervals of about six weeks.

"Optimally," the PHS said, "large scale immunization campaigns with oral poliovirus vaccines should be conducted during the winter or spring months."

Dr. Luther L. Terry, Surgeon General of the PHS, termed the licensing of the Type III oral vaccine as "another major step toward the final conquest of paralytic poliomyelitis."

"Now, two effective weapons, the formaldehyde-inactivated vaccine and the oral vaccine, are available for general use," Dr. Terry said. "Their proper application should accelerate the decline in poliomyelitis and could lead to the early elimination of the disease."

The PHS called for emphasis this year on vaccination of the unimmunized and inadequately

protected with one or the other of "these effective vaccines (or a combination so long as there is at least a complete series of either) and also to the initiation of as many well-organized community-wide programs as the supply of vaccines will permit."

The PHS set four priorities in use of the polio vaccines:

1. Vaccination programs in areas threatened with epidemics. The PHS Communicable Disease Center at Atlanta, Ga., will keep on hand supplies of oral vaccine to meet this need.
2. Routine immunization of infants, starting when six weeks old and completed in 12 months.
3. Immunization of pre-school children.
4. Immunization of young adults and parents of young children.

Eighth Annual Convention

Arkansas State Medical Assistants Society

The Eighth Annual Convention of the Arkansas State Medical Assistants Society was held at the Lafayette Hotel in Little Rock, Arkansas on April 14-15, 1962. Mrs. Katherine Spraggins, president, presided, and approximately 130 medical assistants from all parts of Arkansas attended.

"Progress Through Education and Ultimate Certification" was the key-note sounded throughout this convention.

The following officers were elected and installed at this convention: Miss Bess Kennedy, El Dorado, President; Mrs. Mildred Ruck, Little Rock, President-Elect; Mrs. Fay Evans, El Dorado, Secretary, and Mrs. Phyllis Walden, Newport, Treasurer. Mrs. Bobby Antrim, Oklahoma City, Oklahoma, Chairman of the Public Relations Committee of AAMA, conducted the installation services. A reception for the new officers and post-officers conference, concluded the two day session.

Present Status of Selective Service As It Relates to Physicians

During the calendar year 1961 three Selective Service calls for physicians were issued. This was the first time such calls have been necessary for several years. However, during the past year there was a decrease in volunteers and an increase in the numbers required by the Armed Forces as a result of the mobilization program. This increase in requirement was obtained by:

1. Discontinuing the acceptance of resignation of Regular Officers.
2. Denying release of those Reserve Officers who had voluntarily extended their active duty for an indefinite time.
3. Selective Service call up of 1,025 physicians.
4. Call to active duty of National Guard and Reserve Units with Medical Officers attached.

Because physicians, dentists and other medical specialists, generally speaking, are liable for military service until age 35, and because they may be called as a special group, they were given the following considerations:

1. Those in a Reserve status who were called as filler personnel on or after September 1, 1961 and who had completed at least 21 months previous active duty were given the opportunity to be released shortly after the activation of the unit.
2. Those Reserve Officers on active duty serving only their required two years were released at the end of their tour.

The physicians called up by Selective Service were those in the youngest age group who had completed their internship. This group, therefore, included almost exclusively first year residents and physicians just beginning private practice. Since the call was based on age it was not evenly distributed and some hospital training programs suffered a depletion of their first year residents while others were untouched.

Because of the possibility of future Selective Service calls for physicians in time of a crisis it would be well to consider the measures which are available to ameliorate the effect on hospital staffs and civilian communities. These are:

1. *Appeal of classification of I-A (available for military service) to the Appeal Board.*
- Shortly after completion of internship, physicians are normally classified by Selective Service in Clases I-A. An appeal may be made within ten days after receipt of this classification by filing with the local board a written notice of appeal. If the physician is located in an area other than that covered by his local board he may request that his appeal be submitted to the appeal board having jurisdiction over the area where he resides.
2. *Request for determination of essentiality.*

A physician who receives a Selective Service induction notice may, if he is essential to his com-

munity or hospital and if his essentiality can be documented, request a determination of such essentiality from his local or State Selective Service Advisory Committee. Copies should be sent to the advisory committee where he is located if this is different from the committee governing the area of the board where the physician is registered. Such a request may also be directed to the National Advisory Committee to the Selective Service System, Washington, D.C.

3. *Delay in reporting to active duty.*

Physicians who have received induction notices and have been commissioned may apply to the Armed Service in which they are commissioned for a delay in reporting to their duty station. Such request must be supported by evidence of essentiality or severe personal hardship.

For those physicians who do not wish to subject themselves to the uncertainties of the draft, the Armed Forces Physicians' Appointment and Residency Consideration Program (Berry Plan) provides for a reserve commission with entry on active duty at one of the following times:

1. Immediately upon completion of internship.
2. As late as one year following internship.
3. Upon completion of residency training in specialties required by the Armed Forces.

Application may be made for participation in this program early during the intern year. Acceptance into any of the three categories is dependent upon the projected needs of the Armed Services.

(Prepared at the request of the AMA Council on National Security by Eugene V. Jobe, M.D., Medical Liaison Representative, AMA Washington Office, and James E. Fitzgerald, M.D., Member, AMA Council on National Security, April 9, 1962.)

Arkansas Hospitals Need Nursing Help

Wanted: 400 more registered nurses in Arkansas hospitals—today.

And within five years, the 1,780 RN's working in the state's 81 hospitals must be upped 38 per cent.

These are the findings of a survey conducted by a leading medical equipment producer, the NCG division of Chemetron Corporation, Chicago.

The Arkansas situation is far from unique (the NCG study reveals a shortage of 100,000 RN's nationwide) and its causes follow a familiar pattern:

★ increasing population creating a steady demand for more nurses.

★ high school graduates discouraged from entering the profession by low salaries.

★ shortage of physicians forcing new duties on nurses, cutting down time spent with patients.

Arkansas—along with the rest of the country—is apparently losing the battle to produce increasing number of nurses needed. Inadequate nursing, while a cause for concern today, could be disastrous in the event of a major civil defense emergency, experts say.

University of Arkansas Medical Center Has Priceless Mementoes

Proof of the high standards of the medical profession in Arkansas from the arrival of the first doctor is contained in priceless mementoes at the University of Arkansas Medical Center in Little Rock.

Dr. Matthew Cunningham arrived in 1820 and built a little shack a short distance from the "little rock" on the bank of the Arkansas river. He brought with him his wife who was a close relative of Marshal Bertrand, one of Napoleon's most distinguished soldiers.

Dr. Cunningham was graduated from the University of Pennsylvania School of Medicine in 1807. His diploma in the Medical Center's Library at Little Rock contains the names of Benjamin Rush, professor of the practice of medicine and a signer of the Declaration of Independence; William Shippen, who had been a second surgeon of the American Revolutionary forces; and Philip Syng Physick, who operated on Chief Justice John Marshall.

Dr. Cunningham was a naval surgeon in the War of 1812. After that, he studied in Paris and other medical centers of Europe.

Many descendants of early Arkansas doctors have remained in the state, and some have continued in medicine.

The first medical society in the state was organized in 1845, by Dr. James A. Dibrell and the Army surgeons at Fort Smith. The medical Association of Little Rock and Pulaski county was organized at the close of the Civil War along with a number of other county societies.

The Arkansas Medical Association was organized in 1871, and four years later, it became the "State Medical Society of Arkansas." Dr. P. O.

Hooper of Little Rock, was president of the association, and Dr. Claiborne Watkins was corresponding secretary. Other now familiar names included Dr. J. B. Bonds, and Doctors R. G. Jennings, Louis R. Starke, Dodge, Moulton, W. B. Welch, Albert Dunlap, Randolph Brunson, J. P. Mitchell, E. T. Dale, A. L. Breysacher, W. R. Bathurst, R. L. Saxon, J. W. Scales, R. C. Thompson, J. H. Lenow and L. P. Gibson.

Arkansas drew on many sources for its medical men in the early days. Dr. Busnine, who settled at Arkadelphia, was a member of the Royal College of Surgeons in London, on the Faculty of Medicine at Paris, France and surgeon of the East India Company before coming to Arkansas.

Dr. W. G. Poellnitz opened his office in the Anthony House, the state's largest hotel for many years. He was graduated from the University of Goettingen. Dr. A. G. Brent, a surgical graduate of the University of Glasgow, Scotland, advertised in the Arkansas Gazette, August 14, 1839, that he would tender medical services to citizens of Randolph county and those adjoining in the practice of surgery, physic and obstetrics.

After service in the Royal College of Physicians in Dublin, and the University of Glasgow, he practiced for 10 years in the United States before coming to Arkansas.

The University of Pennsylvania, New York College of Physicians and Surgeons, Louisville Medical College, South Carolina Medical College, McGill University, Medical School of Maine, Savannah, Georgia; Medical School, University of Nashville, St. Louis Medical College, and the universities and medical colleges of Virginia, Transylvania, Iowa, Georgetown, Missouri, Kentucky, Cincinnati, Baltimore, Miami, Atlanta, and many others provided Arkansas with early doctors.

Doctors Watkins and Fulton established a drug store in Little Rock and announced on June 1, 1830, that they would practice medicine in that vicinity and also carry a general assortment of drugs and medicines, including the most celebrated patent medicines, fresh from the markets of New York.

In January, 1832, the Arkansas Territorial Legislature passed a bill to regulate the practice of medicine. It proposed to set up a board of eight practitioners to examine and license physicians, but the bill was vetoed by Governor John

Pope because he said it was "premature and impolitic."

By 1833, several physicians and surgeons seemed well established in practice of medicine and social life of the community including Doctors William P. Reyburn, J. C. Roberts, McWilliams and Elliott.

The first medical school in Arkansas was established at Little Rock in 1879. Dr. Hooper was president, and other faculty members included Doctors James A. Dibrell, Jr., Edwin Bentley, Jennings, Gibson, Miller, Starke and Lenow.

Dr. Bentley, who served as dean from 1905 to 1907, prepared a paper for the school on various medical subjects, and illustrated it with the human tissue with which the paper deals. The treatise, still on file at the Medical Center Library, is an interesting item for posterity. The tissue which he used to illustrate his teachings has been preserved through the years in a bound folder and still vividly portrays some of the ailments he described. It is believed that Dr. Bentley used paraffin to preserve the pathological specimens he selected to illustrate the impromptu "textbook".

Dr. Bentley's son, Dr. Carle E. Bentley, gave the medical school several hundred volumes from his father's extensive medical library.

The library also has some "case books" of Dr. J. H. Southall, whose office was at Second and Main Streets, Little Rock, "over Hughes and McNaulty's". The books date back to 1875, and give interesting data on the physician's income and expenditures, and payments from his patients.

Dr. Morgan Smith served from 1912 to 1927, as dean of the school and was succeeded by the late Dr. Frank Vinsonhaler, who retired as dean in 1939.

In 1911, the school became the Medical Department of the University of Arkansas. In 1956, the school was relocated in its present modern surroundings, in Little Rock, along with the Schools Pharmacy, Nursing, Medical Technology and X-Ray Technology. The library serves all these schools.

The state's heritage of medical education and the library have contributed much toward making the University of Arkansas Medical Center, the state's center for teaching of the health sciences, among the out-standing such institutions

in the nation.

During the early years, the school's library accumulated many rare and interesting exhibits and publications for its library, including about 60 of the leading medical journals of Europe and the United States. Currently, the library is seeking to strengthen its file on medical history, in Arkansas, and would be interested in hearing from persons who might provide material of historical nature.

Fund Drive at DeWitt

A fund drive was started at DeWitt to raise funds for the building of a 20-bed hospital. Federal aid funds have been approved in the amount of approximately \$150,000. The people of DeWitt have endorsed a bond issue of \$142,000. Approximately \$50,000 more has to be raised by public subscription to complete the \$300,000 estimated cost.

Clarendon Puts on Drive for New Medical Center

The City of Clarendon has started a drive to establish a \$40,000 medical center. It is hoped that if no private physician for the city is found, the citizenry can build a clinic and obtain a physician to practice in the area.

American College of Physicians' Meeting

The American College of Physicians met in Chicago April 12, 1962. Eleven thousand internists attended. Governors for the various states were re-elected, among whom was Dr. John N. Compton representing Arkansas.

Medical Self-Help Training Program

A three day training program was held April 4-5-6 for the people of Ashley county by the Health Department to prepare the American people NOW to care for themselves, where necessary, using their own ingenuity and resources available at time of disaster. In addition to First Aid and nursing care in the home, the lessons included Radioactive Fallout and Shelter; Shock, Transportation of the Injured, and others.

\$1 Million Addition Planned for Hospital

An addition with 134 new beds and a new laboratory will be built at Arkansas Baptist Hospital during the coming year. Plans now call for adding two stories on top of the present two-

story surgical wing to provide space for 67 beds on each floor. It will bring the total capacity of the hospital to 500 beds.

A new laboratory with additional space for bacteriology and chemistry work will be added as part of the expansion program. It will be located on the north side of the second floor of the old part of the hospital.

State Offers Medical Self-help Course to Better Chances of A-attack Survival

To insure that the public does have basic medical information that could save lives in the event of a nuclear attack, the state Health Department is co-operating in a nationwide program designed to teach at least one person in every American family how to care for others under emergency conditions. There are 12 lectures in the 16-hour course, known officially as Medical Self-help Training; some subjects covered are the effects of radioactive fallout, provisions needed for a shelter, hygiene, sanitation, control of vermin in emergency conditions, many phases of first aid, etc. Since January 15, when the program began, 285 persons in the state have taken the course. Each student receives two handbooks, which are basically condensations of the lectures and a larger booklet intended as a family guide to emergency health care. The lectures for the course are contained in a booklet in a kit supplied by the Office of Civil Defense Mobilization and the Public Health Service, the two federal agencies that are coordinating the program nationally. Each state begins its Self-help program by getting supply kits which the federal government provides free. Arkansas now has 33 kits, or enough to teach 3,300 persons, each of whom should be qualified to teach the course after taking it.

Hospital Group Holds Meeting

A quarterly meeting of the Arkansas Valley Hospital District Council was held in March, 1962. Attending were 16 council members representing hospitals at Russellville, Mena, Waldron, Fort Smith, Van Buren, Ozark and Danville. The purposes of the council, which was organized June 21, 1961, are to provide better patient care by discussing problems common to all hospitals, and by assisting hospitals in developing new ideas.

Clinic Hospital Expansion Program To Cost \$175,000

An expansion and modernization program that will add 40 per cent more space to the North Arkansas Clinic Hospital is expected to get underway sometime this summer. This will consist of a two-story addition. The first floor will include a physical therapy room, expanded x-ray department, lounge, storage rooms and a doctor's office. The second floor will embrace six two-bed patient rooms, two one-bed rooms, recovery room, labor room, nursery, nurses station, hospital pharmacy, various utility rooms and work areas. Renovation for the first and second floors of the present building will include an expanded laboratory, emergency room, the addition of a waiting room and chapel, nurses lounge, and expansion of work areas.

Committee Finds Hospital Lacking; Eyes New Plant

After a series of meetings, the recently appointed hospital committee made public a summary of its findings and the problems surrounding the facilities of Bates Memorial Hospital. A spokesman for the committee said in part: "The committee feels that if steps are not taken now to improve the community's hospital facilities that within four years we might be faced with a situation that would bring about the closing of the present facilities, or conditions that would curtail the operation to the point where it would be necessary for citizens of this community to go to neighboring towns for adequate medical facilities. The committee has consulted an architectural firm who are preparing plans for construction of a new hospital in Bentonville, at an approximate cost of \$500,000. One-half of this amount would be paid from federal funds under the Hill-Burton Act; \$150,000 would be paid by the passage of a 5-mill bond issue, and the remaining \$100,000 must be raised through individual contributions of all the citizens of Bentonville and the immediate trade area.

Court Refuses Action on Chiropractors

The Arkansas Supreme Court refused recently to interfere with a Pulaski Chancery Court proceeding against the two North Little Rock Chiropractors accused by the State Medical Board of practicing medicine without a license. The court denied a petition for writ of prohibition filed by

the Arkansas Chiropractic Association, an intervenor in the case.

The Contribution of Practicing Physicians To Medical Education

Practicing physicians are contributing a large amount of time on a voluntary basis to the teaching services of U. S. medical schools. The extent of their contribution is not susceptible at this time to precise measurement, but even an approximation will indicate the scope.

The accompanying diagram of the full-time equivalents of part-time faculty for 71 selected schools in 1951 and 1960 is part of a comprehensive study of trends in medical school faculty staffing patterns now in progress in the Division of Operational Studies. It is based on information derived from the Faculty Register. Here, part-time faculties have been converted to full-time equivalents on the basis of the number of hours worked. "Full-time" is defined as 1,920 or more hours per year. Although the data do not represent all the U. S. medical schools, they serve to illustrate the magnitude of the voluntary contributions of medical teaching personnel in spite of understatement.

Part-time faculties serve almost completely without compensation—especially in the clinical departments. Figure 1 shows that in 1951 the working hours of part-time clinical faculty members *equalled* those of 2,191 full-time teaching personnel. In 1960 the corresponding number of working hours *equalled* those of 2,358 full-time faculty members. These data support the conclusion that the amount of time and effort donated by part-time clinical faculty members to the cause of medical education has continued without diminution over the years.

The significance of this contribution on the part of the medical profession is underscored when translated into terms of its dollar value. From the most recent salary survey of U. S. medical schools made in 1959-60, the median salary for a full-time faculty member, including all those holding a rank of instructor or higher was established at approximately \$12,000 per year. Using this median salary as a base, it can be said that in 1960 practicing physicians in the 71 clinical departments contributed "without fee or stipulation" the equivalent of \$28,300,000 worth of professional time to impart a knowledge of the art of medicine.

These facts become even more impressive when viewed with reference to the national picture and when all existing medical schools are taken into account. In 1960 the equivalent of 2,835 full-time faculty members were employed among

part-time clinical teachers in all 85 medical schools. Based on the same median salary their total contribution in professional services to medical education for that year approximated \$34,000,000.

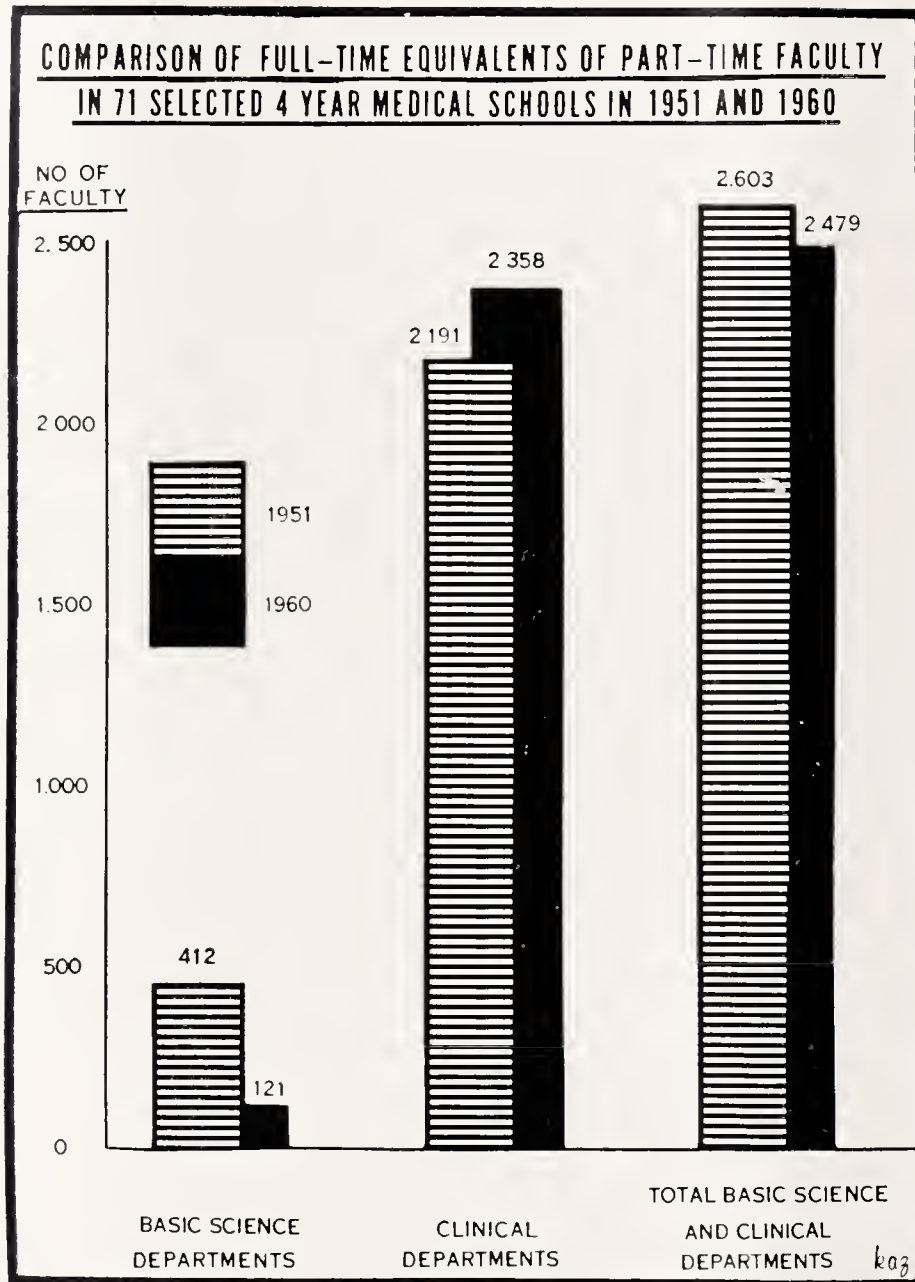


FIGURE 1

THINGS TO COME



Rocky Mountain Cancer Conference

The 16th Annual Rocky Mountain Cancer Conference will be held at Denver's Completely air-conditioned Brown Palace West Hotel, July 13-14, and will feature panel discussions on "Neoplasms Complicating Pregnancy" and "Carcinoma of the Colon".

The Endocrine Society's Fourteenth Annual Postgraduate Assembly on Endocrinology and Metabolism will be held at the University of Washington, Seattle, July 30-August 3, 1962.

The Southern Medical Association will hold its Annual Meeting November 12-15, 1962 at the Fontainebleau Hotel, Miami Beach. Exhibits of high caliber are solicited for the Scientific Section. Applications may be obtained from the chairman of the Scientific Exhibit Committee, George F. Schmitt, M.D., 30 S. E. 8th Street, Miami, Florida.

Trumann until 1942, when he entered the Army Medical Corps. During World War II he rose to the rank of major. Dr. Berry moved to Jonesboro after his discharge in 1946 and began practice here. He was a member of First Methodist Church. He was a member of the Craighead-Poinsett Medical Society, the Arkansas Medical Society and the American Medical Association. He was a Mason and a Shriner.

Dr. Chesnutt of Little Rock Dies at Age 80

Dr. Charles Raphael Chesnutt, aged 80 of Little Rock died at a Little Rock hospital after a long illness. He had practiced medicine at Little Rock 50 years. Dr. Chesnutt received his medical degree at the University of Louisville (Louisville, Ky.) and interned at two Louisville hospitals. He also took post-graduate work at Northwestern University, Cooper Memorial Hospital, and at Barnes Hospital. He taught at the University of Arkansas School of Medicine from 1908 to 1910 and served in World War II. He was on the staffs of St. Vincent Infirmary and Arkansas Baptist Hospital at Little Rock. He was a member of Our Lady of the Holy Souls Catholic Church, the Arkansas Medical Society, the American Medical Association and the Little Rock Country Club. He was a retired member of the Little Rock Rotary Club.

ABSTRACTS

Encephalitis Probably Due to Infectious Mononucleosis—W. W. Nichols and B. Athreya

Amer J Dis Child—Vol. 103:72 (Jan.) 1962

Four cases of encephalitis with coma and catatonic behavior, associated with a positive heterophile antibody titer and some, although few, atypical lymphocytes in the peripheral smear, were observed over an 8-month period. Three were severely ill, but each patient made a complete recovery. Careful study of blood smears and heterophile titers of patients with infections of the central nervous system, in addition to virus diagnostic studies, may help to clarify the frequency of this complication in infectious mononucleosis.



OBITUARY

Dr. W. E. Berry, prominent Jonesboro physician, died on March 11, 1962, after suffering a heart attack. Dr. Berry was born in Palo Alto, Calif., graduated from Palo Alto High School and Stanford University. He was graduated from the University of Tennessee College of Medicine in Memphis in 1930. He served his internship at University Hospital at Oklahoma City and began practice in Trumann in 1931. He remained at



PERSONAL AND NEWS ITEMS

Dr. Robert Watson Is Honored

Dr. Robert Watson, was one of three persons who was cited as Distinguished Alumni at the University of Arkansas' 88th spring commencement program. The others were C. A. Vines of Little Rock, and Tell T. White of Washington.

Dr. Sneed Attends New Orleans Course

Dr. John W. Sneed, Jr., Conway ophthalmologist, returned recently from New Orleans, La., where he attended a study course at the New Orleans Academy of Ophthalmology. The five-day course was on external diseases of the eye. More than 400 eye doctors from the United States and several foreign countries attended.

Pediatrician Guest Speaker at PTA

Dr. W. G. Lawson, Fayetteville pediatrician was the guest speaker at a meeting of the Parent-Teacher Association at Fort Smith. Dr. Lawson, a graduate of the University of Arkansas Medical School, is serving his residence at the U of A and Johns-Hopkins Universities. The subject of Dr. Lawson's talk was "To Live Effectively and Enjoyably—Sound and Physical Health."

Dr. R. B. Robins in Talk in Iowa

Dr. R. B. Robins, a Camden, Arkansas general practitioner and an official of the American Medical Association, on March 21, 1962, cited his reasons for opposing a plan which would put medical care for the nation's aged under the Social Security System, among them being that the bill would not help the 2,500,000 of the aged who are not receiving Social Security benefits, it would increase taxes on the working people and their employers to purchase medical care for millions of others who are financially able to take care of themselves, it would alter the fundamental concept of Social Security by providing services rather than cash benefits, it would be subject to

continual, inevitable political pressure for expansion of both benefits and eligibility, leading ultimately to full-scale national compulsory health insurance for the entire population—and this would involve government control over the medical profession, our patients, and our entire system of health care, and we already have existing mechanisms which can do the job, the Kerr-Mills law, to aid the needy and the near-needy, and specially-tailored voluntary health insurance plans for the remainder of the aged who want them. Dr. Robins went on to say that the real, ultimate objective is not simply a limited program of Social Security health care for the aged. Dr. Robins concluded by saying "Our aim is to help those who need help whether they are 6 or 65 years of age, and to preserve the strength of American initiation by stopping any further take-over via welfare statism."

Dr. Charles E. Kemp Passes Board of Pediatrics

Dr. Charles E. Kemp of Jonesboro, a native of Trumann, has passed the examinations board and has been named a diplomat of the American Board of Pediatrics. He is a graduate of the University of Arkansas Medical School. His residency was at St. Louis City Hospital.

Dr. Danvis Rust Begins Practice in Rector, Arkansas

Dr. Danvis W. Rust recently opened his office for the practice of general medicine and surgery. For the past four years he has been practicing in New Mexico. Dr. Rust will be associated in practice with the Piggott Hospital.

Dr. Kolb Delegate to Medical Session

Dr. James M. Kolb, Sr., of Clarksville, was one of the two Arkansas delegates to the American Academy of General Practice session held in Las Vegas during the month of April.

Thorne Post With Schools to Hopkins

Glen Hopkins, merchant of Van Buren, has been selected to succeed A. E. Thorne, as a member of the Van Buren district school board, and M. J. Graham, dentist, has been elevated to the position of president of the board. Dr. Thorne had left for Jonesboro where he has opened an office.

Mental, Physical Health Discussed at Meeting Of Smackover's PTA

Dr. Roger J. Warner of Little Rock, chief psychologist of the State Board of Health, was the principal speaker at a meeting of the Smackover Parent-Teachers Association held in Hobgood Auditorium on March 22. His theme was "Sound Mental and Physical Health". Dr. Warner stressed that emotional and mental health begins in the home, with the parent being able to know when to protect a child and the wisdom to know when he must learn to stand on his own feet and make his own decisions. He also spoke of the tremendous strides that have been made in recent years in educating the exceptional child to the limit of his or her ability, and the effort being made that they may take their rightful place in the community and the help given to enable them to become productive and happy citizens. A question and answer period was conducted by Dr. Warner.

Osceola Doctors Incorporate Medical Clinic

Doctors R. Frank Rhodes and George D. Pollock in March, 1961, filed articles of incorporation. Their firm will be known as Rhodes-Pollock Clinic Ltd. The corporation is authorized to issue 100 shares of stock at \$1,000 par value. Prior to approval of the 1961 act which opened the door for formation of medical corporations, doctors and clinics had to operate either as individuals or partnerships.

Researcher Shares Mental Study Grant

Dr. Roscoe A. Dykman, a University Medical Center scientist, is sharing in \$291,796 worth of mental health research grants approved by the National Institute of Mental Health. The grant to Dr. Dykman totals \$18,472, covering the first

year of the 5-year period. It will total about \$100,000 altogether, and the money goes for salary and other forms of support for his research work. Dr. Dykman is engaged in two broad fields of scientific study. Broadly, they can be divided into animal and human behavior problems. Dr. Dykman is seeking clues to genetic factors underlying nervous breakdown. His second major project involves patterns of human reaction to stress.

Calhoun County's Dr. Rhine Notes 64 Years of Practice

March 27th marked the 64th anniversary of medical practice for Dr. Thomas E. Rhine of Thornton who has cared for as many as six generations in some families and has delivered three and four generations of babies in many families, and is still active at the age of 87. He hung out his shingle in Locust Bayou in 1898 and served people of Calhoun County and surrounding areas night and day through all conditions since that time. In 1949 he was chosen the Arkansas Doctor of the Year.

Dr. H. V. Kirby Is Candidate for Coroner

The candidacy of Dr. H. V. Kirby for County Coroner is subject to the Democratic primaries this summer. Dr. Kirby is a native of Harrison and has practiced medicine here for a number of years. He has served on the school board.

Dr. Major Smith Elected Head of Chicot TB Assn.

Dr. Major Smith of Dermott was elected president for the coming year. He has been filling the unexpired term of the late Dr. V. H. Marques of Lake Village.

Dr. Jack Webb of Blytheville Named New ABO Member

Dr. Jack Webb has been made a member of the American Board of Ophthalmology. Dr. Webb last year completed a post graduate course at Washington University, St. Louis.



NEW MEMBERS

Hot Spring County Medical Society announces that **DR. GEORGE ROSENTHAL, JR.** has been added to its roster of members. He is a native of Batesville, Arkansas, and his preliminary education was obtained from Washington University in St. Louis, Missouri. His M.D. degree was obtained from the University of Arkansas School of Medicine in 1960. Dr. Rosenthal has practiced in Oklahoma City, Oklahoma, and he now has his office at 1120 South Dyer in Malvern, Arkansas. He is a general practitioner.

DR. G. WAYNE TAYLOR is a new member of Mississippi County Medical Society. He is a native of Trumann, Arkansas, and he received his preliminary education from Arkansas State College, Jonesboro, Arkansas. His M.D. degree was received from the University of Arkansas School of Medicine in 1960. Dr. Taylor is a general practitioner with his office in Leachville, Arkansas.

A new member of Clark County Medical Society is **DR. ROBERT W. HUNTER**. He is a native of Little Rock, Arkansas and he received his preliminary education from the University of Arkansas. In 1960, he received his M.D. degree from the University of Arkansas Medical School. Dr. Hunter is on the staff of Clark County Hospital and his office is located at 416 Main in Arkadelphia. He is a general practitioner.

Boone County Medical Society announces that **DR. WILLIAM A. HUDSON** has been accepted for membership. He is a native of Jasper, Arkansas, and he received his preliminary education from Washington University in St. Louis, Missouri. His M.D. degree was received from Wash-

ington University in 1920. Dr. Hudson has practiced in Missouri and his office is now in Harrison, Arkansas. His specialty is thoracic surgery.

DR. THOMAS F. DILDAY, JR. is a new member of Pulaski County Medical Society. He is a native of Monticello, Arkansas, and his preliminary education was obtained from Hendrix College in Conway, Arkansas. His M.D. degree was obtained from the University of Arkansas School of Medicine in 1954. Dr. Dilday has practiced in Joplin, Missouri; his office is now located at 5808 West Markham, Little Rock. He is a pathologist.

The Pulaski County Medical Society announces that **DR. WINSTON K. SHOREY** has been accepted for membership. He is a native of Wheelock, Vermont, and his preliminary education was obtained from Dartmouth College in Hanover, New Hampshire. His M.D. degree was obtained from the University of Pennsylvania located in Philadelphia, Pennsylvania, in 1943. He practiced in Philadelphia from 1947 until 1955 and in Miami, Florida, from 1956 until 1961. Dr. Shorey now holds the position of Dean at the University of Arkansas Medical Center.

A new member of Pulaski County Medical Society is **DR. RICHARD H. SUNDERMANN**. He is a native of Seward, Nebraska, and he received his preliminary education at the University of Nebraska. His M.D. degree was obtained from Vanderbilt University in 1951. He practiced in Nashville, Tennessee, from 1951 until 1955; in Washington, D.C., from 1955 until 1957; in Perry Point, Maryland, from 1957 until 1961. Dr. Sundermann's specialty is psychiatry and his office is located at 4301 West Markham in Little Rock.

DR. DOROTHY V. HAMMETT is a new member of Pulaski County Medical Society. She is a native of Conway, Arkansas, and her preliminary education was received from Little Rock Jr. College and Arkansas State Teachers College. She received her M.D. degree from the University of Arkansas School of Medicine in 1953. From 1956 until 1961, she practiced in Beverly Hills, California. Dr. Hammett is now a faculty member at the University of Arkansas Medical Center. Her specialty is psychiatry.

Pulaski County Medical Society announces that DR. ALLEN A. GENTLING has been added to its roster of members. He is a native of Rochester, Minnesota, and his preliminary education was received from Northwestern University Medical School in Chicago, Illinois. His M.D. degree was received from Louisiana State University School of Medicine in New Orleans, Louisiana, in 1942. Dr. Gentling's office is located at St. Vincent Infirmary, Little Rock, Arkansas. His specialty is anesthesiology.

DR. JOHN WILLIAM LANE is a new member of Pulaski County Medical Society. He is a native of Doniphan, Missouri, and he received his preliminary education from Arkansas Polytechnic College and from Stanford University. His M.D. degree was received from the University of Arkansas School of Medicine in 1947. He has practiced in Imboden, Arkansas, from 1948 until 1949; in Baton Rouge, Louisiana, from 1949 until 1951; in the U.S. Air Force from 1951 until 1956; in Little Rock, Arkansas, from 1956 until the present time. Dr. Lane's specialty is radiology and his office is located at the Arkansas Baptist Hospital, Little Rock.

IN MEMORIAM

Dr. Charles R. Chesnutt

After four score years, the end has come to the useful life of Dr. Charles Raphael Chesnutt. He possessed both skill and knowledge in the practice of the healing art, and a personality and character that won confidence and esteem. He had served his fellow men for half a century and had made a high place for himself as a physician and as a citizen.

There can be no greater satisfaction for any many in the last years of a long life than to know that he will be remembered for his contributions to the invaluable benefits of health and happiness.



Dr. Hammett Speaks to Pulaski County Woman's Auxiliary

The Woman's Auxiliary to the Pulaski County Medical Society met at Dr. Charles Minor Taylor Memorial Home. Hostesses were: Mrs. Jose B. Scruggs, Chairman; Mrs. J. B. Cross, Co-Chairman; Mrs. Erner Jones, Mrs. James Newbill, Mrs. William Orr, members. Mrs. Merlin J. Kilbury, Jr., President, presided over the business session. Dr. Dorothy Hammett spoke on "What to Do 'til the Psychiatrist Comes."

Silver Tea Is Held in Little Rock

The Woman's Auxiliary to the Pulaski County Medical Society in cooperation with the Woman's Auxiliary to the University of Arkansas Medical Center sponsored a Silver Tea at the University of Arkansas Cammack Campus in Little Rock. All proceeds went to the American Medical Education Foundation Fund.

Doctor's Day Is Celebrated

The Woman's Auxiliary to the Pulaski County Medical Society celebrated Doctors Day with a Doctor's Day Tout Sheet on the Doctor's Day Derby—a take off at the Races. Doctor's Day was held at Riverdale Country Club with a buffet dinner, combo, and floor show included.



BOOK REVIEWS

CURRENT DIAGNOSIS AND TREATMENT, by Henry Brainerd, M.D., Professor of Medicine and Chairman, Department of Medicine, University of California School of Medicine (San Francisco), and Physician-in-Chief, University of California Hospitals (San Francisco), Sheldon Margen, M.D., Research Biochemist, Department of Biochemistry, University of California School of Medicine (San Francisco), Milton J. Chatton, M.D., Assistant Clini-

cal Professor of Medicine, University of California (San Francisco) and Stanford University (Palo Alto) Schools of Medicine, and Geriatric Consultant, Palo Alto Medical Clinic and Associate Authors, pp. 758, published by Lange Medical Publications, Los Altos, California, 1962.

This book is one of the numerous current texts in which an effort is made to condense the field of medical diagnosis and treatment into one book of approximately 758 pages. In order to accomplish this the authors have written their text in a certain type of outline form. The information contained in this book is reliable but very abbreviated. This book is probably of limited value to the medical student and to the practicing physician as a brief handbook, as, for example, the sort that might be kept on a ward desk as a brief reference manual. AK

EARLY DETECTION AND DIAGNOSIS OF CANCER

by Walter E. O'Donnell, M.D., Visiting Investigator, Sloan-Kettering Institute for Cancer Research, New York, N.Y.; former Assistant Director, Strang Cancer Prevention Clinic, Memorial Hospital for Cancer and Allied Diseases, New York, N.Y.; former Assistant Attending Physician, Department of Preventive Medicine, Memorial Hospital for Cancer and Allied Diseases, New York, N.Y.; former Associate, Sloan-Kettering Institute for Cancer Research, New York, N.Y.; former Assistant Professor of Preventive Medicine, Sloan-Kettering Division, Cornell University Medical College, New York, N.Y., Emerson Day, M.D., F.A.C.P., Director, Strang Cancer Prevention Clinic, Memorial Hospital for Cancer and Allied Diseases, New York, N.Y.; Chairman, Department of Preventive Medicine, Memorial Hospital for Cancer and Allied Diseases, New York, N.Y.; Chief, Division of Preventive Medicine, Sloan-Kettering Institute for Cancer Research, New York, N.Y.; Professor of Preventive Medicine, Sloan-Kettering Division, Cornell University Medical College, New York, N.Y., and Louis Venet, M.D., F.A.C.S., Associate Director, Strang Cancer Prevention Clinic, Memorial Hospital for Cancer and Allied Diseases, New York, N.Y.; Associate Attending, Department of Preventive Medicine, Memorial Hospital for Cancer and Allied Diseases, New York, N.Y.; Associate Attending Surgeon, Beth Israel Hospital, New York, N.Y.; Associate Clinician, Sloan-Kettering Institute for Cancer Research, New York, N.Y.; Assistant Professor of Preventive Medicine, Sloan-Kettering Division, Cornell University Medical College, New York, N.Y., pp. 286, published by The C. V. Mosby Company, Saint Louis, 1962.

This book is of considerable interest in that it summarizes in one text of less than 300 pages methods of examination for cancer of many different parts of the body. It has several excellent color plates. It has good black and white sketches. It is written in outline graphic form. This is a very worthwhile brief reference book and is heartily recommended to the practicing physician and houses staff of hospitals. AK

INTERNAL MEDICINE IN WORLD WAR II, Volume

I, Activities of Medical Consultants, prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Editor in Chief, Colonel John Boyd Coates, Jr., MC. Editor for Internal Medicine, W. Paul Havens, Jr., M.D. Office of the Surgeon General, Department of the Army, Washington, D.C., 1961, illustrated, pp. 880.

This book will be of extreme interest to physicians who were in service in World War II. It will also be of interest

to anyone studying military medicine. This particular volume discusses the activities of the medical consultants in the various theaters of operations. There are excellent interesting illustrations. There are discussions of both the deployment of the medical personnel and, of much more interest, some of the medical problems encountered and how they were solved. This book is heartily recommended to anyone interested in the medical history of World War II. AK

GREEN AND RICHMOND—PEDIATRIC DIAGNOSIS.

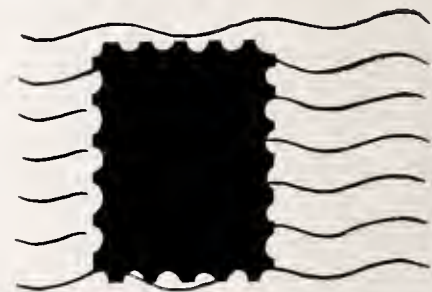
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L E T T E R S



T O T H E E D I T O R

**SPECIAL ANNOUNCEMENT REGARDING
A CYSTIC FIBROSIS CLINIC**

Dear Doctor Kahn:

The Pediatric Department of the University of Arkansas Medical Center has set up a Cystic Fibrosis Clinic, meeting once a month, to serve physicians in the state of Arkansas. This clinic exists for several reasons. Cystic fibrosis of the pancreas is a common problem affecting one out of every 600 newborns and therefore about 70 Arkansas infants a year. Newer tests make the diagnosis of cystic fibrosis rapid, easy, and reliable. Finally, a number of new therapeutic measures have revolutionized the management of these patients.

This clinic is designed to serve the practicing physicians in several ways:

1) *Diagnosis*—Physicians are invited to refer any child with chronic respiratory and/or gastrointestinal disorders for special diagnostic study.

The workup can be completed at one visit. We employ an iontophoresis apparatus which induces profuse sweating on a small part of the body. The test takes five minutes and can be done on any child at any time without previous preparation and with no appreciable discomfort.

2) *Management of a known cystic fibrosis patient* — Any diagnosed child can be referred for consultation regarding the institution of a long-term therapeutic regimen. After evaluating the child we would be happy to suggest, in sufficient detail, measures which may be of aid in your management of the child. Later on we would be happy to see the patient again for followup evaluation should you so desire. This is intended to be a consultation service for you; we do not wish to pick these children up in our own clinic for regular management unless both you and the parents so request.

Referral procedure to the Cystic Fibrosis Clinic:

a) Date of the clinic: The CF clinic meets on the first Thursday of every month. On the first

visit it is hoped that both parents can accompany the child.

b) Time: All new patients should arrive at the Pediatric Clinic by 9:00 in the morning. Studies and examinations will be completed by mid-afternoon. A patient returning for followup visits need not arrive until 12:00 noon.

c) Referral: To refer any patient to the CF clinic simply write the Director of the Pediatric Outpatient Clinic, University of Arkansas Medical Center, Little Rock. Please state whether or not your patient is being referred for a diagnostic workup or is already a proven case. Generally your patient will be seen within a month after your request has been received. This referral procedure is designed for your convenience. If you would prefer to telephone regarding a patient, we welcome the opportunity to discuss your case with you at any time.

Sincerely,

W. T. Kniker, M.D.

Assistant Professor

Department of Pediatrics

TUBERCULOSIS



ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

TUBERCULOSIS MORBIDITY IN A CONTROLLED TRIAL OF THE PROPHYLACTIC USE OF ISONIAZID AMONG HOUSEHOLD CONTACTS

Results of a controlled study among close contacts of newly reported tuberculosis cases suggest that isoniazid prophylaxis may be a valuable addition to a tuberculosis contact program.

Isoniazid has four requisites of the ideal prophylactic agent for tuberculosis: it is extremely effective in treatment, safe, cheap, and easy to take. Therefore, the Tuberculosis Program of the Public Health Service has undertaken a series

of controlled trials of the prophylactic usefulness of isoniazid in different situations.

One of these trials was among household associates of new cases of tuberculosis who were enrolled in the study at the time the index case was reported to the health department. The present report is limited to tuberculosis morbidity observed in this trial.

PLAN OF STUDY

Contacts of 5,677 persons with newly reported tuberculosis entered the trial. They were located in 39 communities across the southern part of continental United States and in Puerto Rico. After excluding 479 cases of active tuberculosis found on original examination of the con-

Shirley H. Ferebee and Frank W. Mount, M.D., *The American Review of Respiratory Diseases*, April, 1962.

tacts, 25,033 were entered in the prophylaxis trial. Of these, 12,594 were assigned placebo and 12,439, isoniazid. The plan of the study was such that only the central office (PHS) knew the code by which bottles of placebo or isoniazid were assigned. All contacts within one household were assigned the same medication, that is, all had isoniazid or all had placebos. Each contact was asked to take the prescribed number of pills for one year. Daily dosage was on the basis of 5 milligrams per kilogram of body weight, or, for adults, approximately 300 mg.

During the medication year, 24 persons on placebo and 34 on isoniazid (excluding five known not to have taken the pills) died of non-tuberculous causes.

Boards of clinical investigators reviewed the clinical, bacteriologic, and roentgenographic evidence on all cases of tuberculosis without knowledge of the prophylactic medication the subjects had received.

ACTIVITY STATUS

Roentgenographic evidence of active primary tuberculosis was detected during the medication year in 29 persons receiving placebo and 22 receiving isoniazid. Among those uninfected at the start of the trial, 16 cases occurred in the placebo group and 5 in the isoniazid group. Twelve of the placebo cases and 3 of the isoniazid involved only enlargement of the lymph nodes, while 4 placebo cases and 2 isoniazid showed both parenchymal lesions and enlargement of lymph nodes.

Isoniazid had no effect on the number of cases of primary tuberculosis detected during the year among those infected (tuberculin positive) at the start of the trial, with 13 cases in the placebo group and 17 in the isoniazid group. It is generally agreed that the perilocal reaction discernible on roentgenograms appears at approximately the same time as skin sensitivity to tuberculin. This suggests that cases among the initially infected detected after the start of trial may represent primary disease actually present on entry.

Only 12 cases of primary disease have been observed since the participants completed their year of medication, 6 in the placebo group and 6 in the isoniazid.

During the year, extrapulmonary tuberculosis developed in 20 contacts, 16 of these had been assigned placebo and 4 isoniazid.

Pulmonary tuberculosis developed during the year in 62 persons assigned placebo compared with 14 persons assigned isoniazid. The difference is highly significant statistically.

The review board classified each case by the stage of disease at the time the case was discovered by the health department. Nearly one fourth had minimal disease; one half had moderately advanced disease; the others, far advanced disease.

RISK FACTORS

The risk of tuberculosis, chiefly primary disease, was high for children less than 5 years of age, but very low for children from 5 to 9 years. Ten to 14 years appeared to be a period of transition from low risk to the high rate of pulmonary disease in young adults. After age 15, the risk remained high until age 30, when it declined slightly, with a considerable reduction after 45 years of age.

The size of the initial tuberculin reaction was directly related to the risk of disease. The risk was lowest for contacts with reactions of less than 5 mm. of induration to 5 TU of PPD-S and increased with the size of reaction to a rate of 20 per 1,000 for those with the largest reactions.

Adult contacts in the placebo group who subsequently developed active tuberculosis weighed less than the average at the time they entered the trial. The initial weights of children who developed tuberculosis did not differ from the average.

Whether a course of isoniazid will eradicate an old infection so that it will never activate may be learned from continued observation of the participants. At present, the data will not support the hypothesis that isoniazid can permanently affect a dormant tuberculous focus. On the other hand, it would seem possible that isoniazid could permanently alter the course of a new infection by eradicating the tuberculous focus and its seedings, thus making subsequent endogenous reactivation impossible. The prevention of primary disease among the initially uninfected and the prevention of extrapulmonary disease give encouragement to this point of view. If this possibility should prove correct, prophylactic isoniazid could be particularly useful in populations in which much new infection is occurring. However, all populations with high rates of tuberculin reactors cannot automatically be assumed to have much recent infection.



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SEARLE

Research in the Service of Medicine

At least two thirds of the contacts in this trial apparently took their pills with a high degree of regularity. From a strictly practical point of view, enough contacts took enough pills to cause a considerable reduction in tuberculosis. This response must be credited largely to the interest taken in these families by the cooperating health

departments and probably also to the awareness of danger on the part of the immediate family.

Efficiently organized, the cost of adding isoniazid prophylaxis to an established contact program should be very little. Furthermore, an active procedure to prevent tuberculosis added to the usual passive policy of watchful waiting should improve considerably the co-operation of contact families.

THE
JOURNAL
OF THE
Arkansas MEDICAL
SOCIETY

July, 1962

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San Francisco, 22

a look at the
literature



“Treatment results were good, and in many cases a dramatic response was noted. Many of the cases had previously failed to respond to various types of therapy, including, in some instances, other topical corticosteroid preparations.”

—Gray, H. R., Wolf, R. L., and Doneff, R. H.: Evaluation of Flurandrenolone, a New Topical Corticosteroid, *Arch. Dermat.*, 83:18, 1961

Description: Each Gm. Cordran cream and ointment contains 0.5 mg. Cordran. Each Gm. CordranTM-N cream and ointment contains 0.5 mg. Cordran and 5 mg. neomycin sulfate. All forms are supplied in 7.5 and 15-Gm. tubes.

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The incidence of postoperative wound infections, particularly among debilitated patients, presents a serious hospital problem.¹ These infections are caused in many cases by strains of staphylococci resistant to most antibiotics in common use.^{1,2,3} In such instances, CHLOROMYCETIN should be considered, since "...the very great majority of the so-called resistant staphylococci are susceptible to its action."⁴

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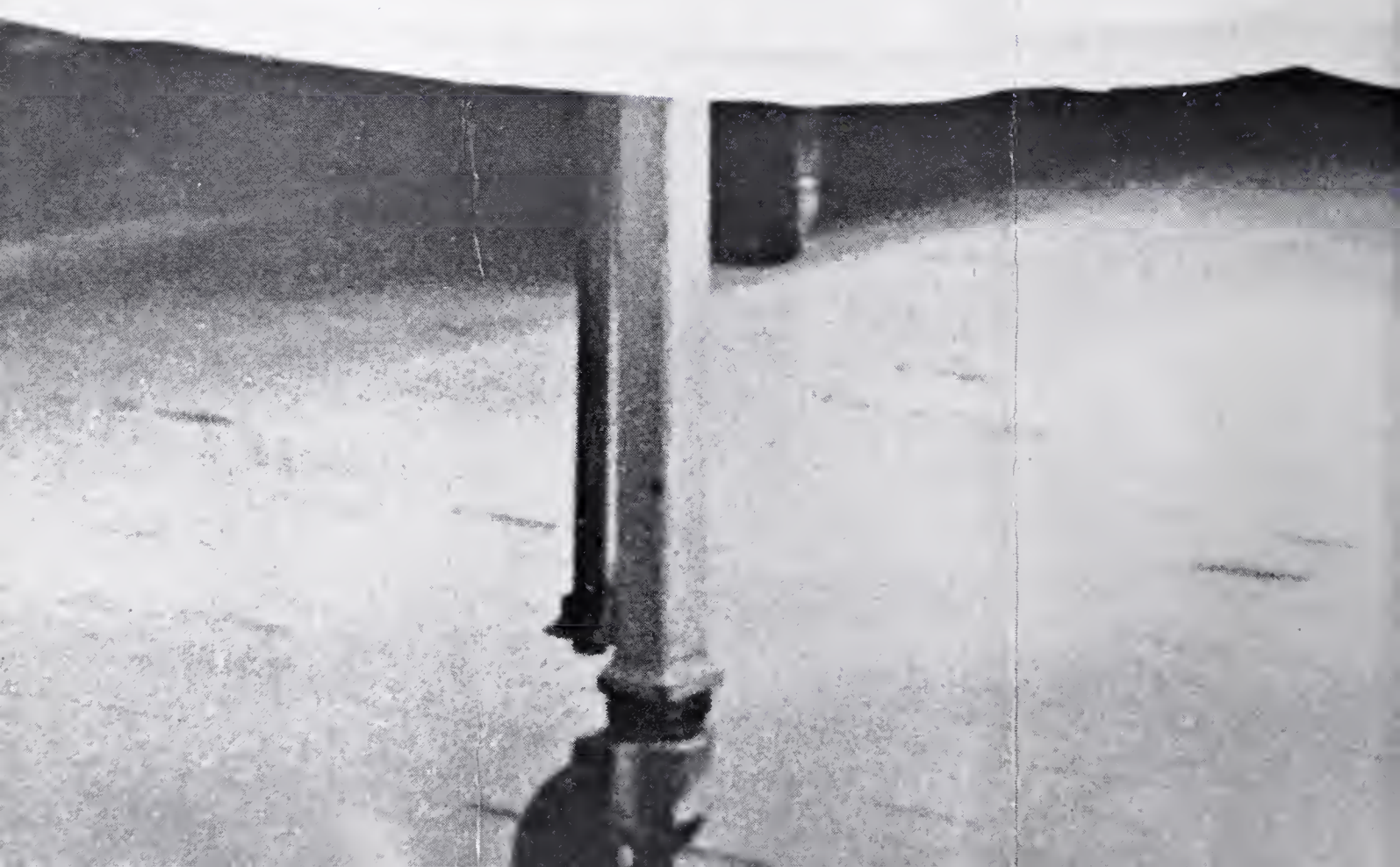
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ETIOLOGIC FACTORS IN CANCER*

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Etiology, the study of the causes of disease, stands as one of the most interesting branches of the study of medicine. Certainly it is one which has been most vigorously pursued both in the laboratory and in the practice of clinical medicine. For the purposes of our discussion, etiology will be defined as the determination of the mandatory antecedent and coincident conditions which act to cause a given disease process. In the study of cancer, the development of a malignant tumor under the influence of etiologic factors is termed "carcinogenesis." This term has been defined by Dr. Hieger¹ as simply, "the process whereby normal tissue is transformed into cancer tissue."

In many respects the study of etiologic factors is a chase of a will-of-the-wisp. For as soon as one factor is discovered, it is found that others are also present requiring deeper and deeper probing into the biologic process. For this reason, etiologic factors, in a broad sense, can be divided into primary and immediate factors.

Primary Causes.—The poorly understood primary causes of disease represent the cellular and molecular mechanisms which result in the actual evolution of a given disease process. Such factors are multitudinous and for this reason, and also because of their complexity, are largely uncontrollable. Under these primary causes are included the rather ill-defined and capricious concepts of the hereditary basis of disease as well as

tumor predeterminism and intracellular molecular alterations.

Immediate Causes.—A more practical grouping of etiologic factors can be collected under those which have an immediate effect in the causation of disease. These would include such factors as the pneumococcus in the development of pneumococcal pneumonia, and tubercle bacillus, the various identified viruses, and even the blow on the head with its clear relationship to the subsequent skull fracture. These factors are recognizable to a large degree and, therefore, are often-times controllable. The differences between the primary and immediate factors in etiology might be explained by consideration of a patient suffering a fracture of the skull after being hit on the head by a baseball. The immediate cause is quite obvious, but a more complete etiologic survey would necessarily include a study of the many factors which put him in the ballpark in the first place. This might include a rather extensive psychiatric examination. Any break in the etiologic chain would have prevented the skull fracture. The baseball forms a rather small but obviously highly important link in this chain.

Tenets of Carcinogenesis

During our discussion of the etiologic factors in cancer, I would suggest that three basic tenets of carcinogenesis be kept in mind. The first of these is that cancer is multicentric in origin. This concept, which Dr. Willis² has so eloquently championed, states that cancer does not arise from a single cell or from a single sharply circumscribed area of cells, but rather that cancer

*Read at the meeting of the Arkansas Academy of General Practice, Little Rock, Arkansas, October 12, 1961.

originates from several foci within a given area. The concept holds that the various etiologic factors operating to produce cancer focus on a target tissue or target group of cells and during this process cause an irreversible change to occur within this field. A malignancy is the result. The observational data available to evaluate this concept are from both human and animal sources. It is well known that in the human, particularly in the nasopharynx, various stages of cancer can be found varying from frankly invasive carcinoma to widely separated areas in which an in-situ cancer is developing. This has further been seen in the uterine cervix as well as in the bladder. Evidence for this concept also has been found in the gastric wall and in the bronchial mucosa.

Time lag is the next tenet. This refers to the period of time which must necessarily elapse between the exposure of a patient or an experimental animal to a carcinogen and the development of a cancer. It appears from clinical studies, as well as animal experimentation, that the usual time lag varies from 5 to 15 per cent of the life span of the animal or patient. In the human, this would mean that cancers could be expected to develop from 5 to 10 years after exposure to a carcinogen. The time lag is dependent on several factors, among them being the type of carcinogen, the dose, and an ill-defined group of factors known as preconditioning. Carcinogens which are very weak require a long period of time before cancers appear, and conversely, those which are very powerful in their carcinogenic effects result in a tumor in a relatively short period of time after exposure. In these respects, carcinogens are similar in their etiologic roles to bacteria in that we ordinarily consider a bacterial infection to be the result of the virulence of the organism, the number of organisms to which the body is exposed, and the resistance of the host.

A third tenet, which is central to our consideration of carcinogenesis, is the long-known but often overlooked fact that it is not so remarkable that some radium-dial painters developed carcinoma as that the majority did not. Throughout the history of investigations into human carcinogenesis the quandary posed has been that of the factors which go to protect the majority of the population from the multitudinous carcinogens to which we are daily exposed. This highly individual response to carcinogens has been

thought to represent an individual pattern of behavior toward these agents, which seems to be preconditioned by factors of heredity, environment, and I am sure, by many other factors entirely unknown to us.

Hypotheses of Carcinogenesis

Before dealing with the individual agents which are known to be immediate causes of cancer, I would like briefly to discuss some of the hypotheses which have been proposed to account for the phenomenon of carcinogenesis. These are considered in detail by Hieger.¹ The hypothesis which has been with us the longest is the so-called irritation hypothesis and was, if not first expounded by, certainly popularized by Rudolf Virchow. Dr. Virchow, who first developed the cellular concept of the basis of disease, proposed that irritative phenomena were the basic causes of cancer. This followed from his observations, and those of many others, of the frequent association of inflammation and ulceration in cancers. Examples of the effects of chronic irritation are well known, particularly carcinomas developing in scars following burns. The implication arising from the irritation hypothesis is that any carcinogenic agent must produce its effects by first causing an irritation. Irritation itself is a term which is not easily defined nor often easy to see grossly or with the microscope. Certainly the type of irritation associated with inflammation is not always present in cancer. Any other form of irritation is so ill defined as to be meaningless. Serious consideration of the irritation hypothesis awaits an acceptable definition of the term.

Another explanation for carcinogenic activity is the mutation hypothesis. This has, perhaps, appealed to a larger audience than any so far proposed. Like the others, it has received damaging criticism in recent years and has, in the process, lost much of its earlier appeal. In essence, the hypothesis states that carcinogens act to produce a mutation, variously defined, in a cell which causes it to become cancerous. Mutation, as the term shall be used here, is the process by which the genetic mechanisms of a cell are transformed so that succeeding generations of that cell will be qualitatively different from the parent cell. Such a definition, of course, would include the possibility that a cancer cell could have arisen by mutation, but it also clearly implies that any change in a proliferating cell line

could equally well be termed a mutation. An example of this latter process would be the development of gray hair from cells once producing black hair, or perhaps the cessation of hair growth from such cells. Also, the development, from gastric acid-producing cells, of cells which do not secrete acid but structurally appear the same as the preexisting cells would be an example of a mutation. As attractive as many aspects of this hypothesis are, it has been unable to account for numerous observations made since it was developed, and its usefulness has thereby been seriously questioned.

The embryonic or cell-rest hypothesis is perhaps one of the oldest hypotheses proposed for carcinogenic activity. It was first developed in 1829 following the observation that cells of other organs, or primitive cells of an already developed organ, may be present in many tissues. Such cells were thought capable of transcending the restraints ordinarily applied to normal cells, thus becoming malignant. Examples of these cell rests abound: pharyngeal mucosa in the pituitary gland, gastric mucosa in the esophagus, and adrenal cortical cells in the kidneys. All of these may give rise to characteristic malignancies. Tumors of obvious embryonal origin, such as ovarian teratomas and testicular embryomas, are also occasionally encountered. Several compelling facts, however, have cast considerable doubt on the universal applicability of the cell-rest hypothesis. One is the experimental observation that carcinogens may be applied practically anywhere on the skin of animals with resultant tumor formations. Not even the most enthusiastic supporters of this hypothesis believe that cell rests are so generously distributed in the skin. The multicentric origin of cancers, particularly those of epithelial genesis, is also cited as contrary to this concept.

And, finally, we have the immunologic hypothesis. Immune reactions, which have been invoked etiologically in nearly every disease known to man, have been proposed as the basis of carcinogenic action. The hypothesis is elaborate and rests on a relatively small factual basis. In essence, it is believed that carcinogens act to free a given group of cells from the immunologic restraints ordinarily imposed upon them, thus enabling these cells to proliferate at will. As attractive as several aspects of this concept are, a

great deal more work needs to be done to remove or confirm various inconsistencies.

Classes of Etiologic Factors

With this background in mind, we can now proceed to a consideration of the etiologic factors themselves. These factors can be conveniently, if arbitrarily, divided into two groups on the bases of their origin: those arising from our external environment and those occurring within our internal environments. The external factors can be further subdivided into chemicals, such as hydrocarbons, arsenic, and others; irradiation, such as that from sun, gamma, and roentgen rays; traumatic factors; and biologic factors, such as viruses. It is more difficult to categorize specifically the factors from the internal environment, but two are the genetic and endocrine factors.

External Factors.—The external factors are certainly the most obvious to patients and to physicians. The fact that they are external renders them somewhat controllable, and because of this, the greatest attention has been directed towards their discovery. It is clear that the external factors in cancer are rapidly multiplying and that a continuous and zealous search must be made to identify them. I should add here that, in this respect, physicians, wherever they may practice, are in an excellent position to identify factors which may be causing cancer in their areas. Industries are increasing their use of various chemicals for cleaning, lubrication, and manufacturing. Furthermore, pesticidal agents, food additives, and a whole host of new products appearing daily require that we continually keep in mind the carcinogenic potential of these agents. For these reasons, as physicians, we are constrained to delve deeply into the history of exposure of every patient coming to our attention. It is only in this way that information of sufficiently broad scope can be assembled and the carcinogenic activity of these newer agents be defined. Not only is it important to know which substances and factors do produce cancer, but it is equally as important to know which do not.

The most prevalent and perhaps the most important of the external factors are the chemical carcinogens. The first of these was discovered in 1775 as the cause of cancer of the scrotum in chimney sweeps. This was due, of course, to the accumulation of soot in the scrotal region as a

consequence of their rather casual bathing habits. Some time later it was learned that hydrocarbons in the soot were responsible for the cancer, and it proved to be an easy matter to produce cancers at will on the skin of laboratory animals by painting them with various hydrocarbons. Other carcinogens, found more or less naturally, are present in tar, pitch, and creosote; all of which contain benzpyrene. Another interesting example of carcinomas developing after exposure to hydrocarbons is gastric cancer which has a high incidence in natives of a small area in Iceland.³ These people smoke their fish with a carcinogenic hydrocarbon-containing fuel. After such fish has been eaten for years, gastric carcinoma frequently develops. Bladder carcinoma occurring in aniline-dye workers was found to be due to betanaphthylamine.

Under chemical carcinogens we should consider the role of smoking and other etiologic factors in the production of lung cancer. Those of us who smoke are well aware of the increasing attention which has been directed towards the association of cigarette smoking and subsequent development of carcinoma of the bronchus. The evidence for this association is statistical and is the result of the coupling of a diagnosis of carcinoma of the lung with historical information supplied by the patient or his relatives on the patient's smoking habits. Despite the increasing evidence which is purported to link smoking and lung cancer, I believe that some caution should be exercised in accepting this association without question. Considerable evidence is at hand which reveals in detail the association of lung cancer with various air pollutants. Hueper⁴ has accumulated evidence from various portions of this country as well as countries abroad to show a marked parallelism of lung cancer with air pollutants of many kinds. These include industrial fumes as well as exhaust fumes from diesel and automobile engines and coal tar fumes from asphalt highways. That carcinoma of the lung is much more prevalent in urban than in rural areas has been cited as evidence that air pollution is an important factor in the causation of lung cancer. Furthermore, it should be kept in mind that only a relatively small portion of people who are heavy smokers eventually develop carcinoma of the lung. For this reason alone, it is obvious that there is a large individual variation in the re-

sponse to the carcinogenic activity of tobacco smoke, if such actually exists. It would seem prudent with our present knowledge to accept tobacco smoking as one possible cause of lung cancer, but further, to accept the evidence that many other causes and agents also exist which appear able to produce these tumors.

The effect of irradiation of various kinds have long been recognized as possessing carcinogenic activity. The increased incidence of skin cancers in the farm population and in sailors is well known. The effects of roentgen rays on the subsequent development of cancers has been well documented. Of particular interest is the development of carcinomas of the thyroid in patients who, in their youth, were irradiated for suspected hyperplastic thymus glands or hyperplastic tonsils. Further, the development of leukemias of various kinds following exposure to gamma and roentgen-ray irradiation is well known.

A group of ill-defined factors which we might term biologic agents has been shown to produce cancer. These agents are viruses, and our knowledge of them is largely restricted to laboratory investigations. However, it is significant that virus-like bodies have been found in various lymphoid tumors and the suggestion has been made that viruses may well be an important cause of several types of human tumors. I would suggest again, however, that some caution be exercised in accepting this; for the evidence, in the human at least, is preliminary. I might add, however, that a viral etiology gives us hope that an antibiotic type of therapy might be of benefit in preventing or even curing cancers.

Proceeding to the traumatic factors in carcinogenesis, I want first to say a word concerning the interest of such a consideration to present-day medicine. All of you are aware of the vast upsurge in litigation which has involved the medical profession. This has paralleled a similar increase in workman's compensation cases, which, in some instances, have involved litigation between plaintiffs and defendants concerning the role of trauma in the causation of cancer. I am sure that you are aware of the weak medical evidence upon which many of these claims are based. It behooves us, therefore, as practitioners of medicine and as men to whom the courts turn for expert testimony, to be aware of the background of clinical and experimental observations which

have been made concerning the role of trauma in carcinogenesis.

Several types of injury are known to be associated with the production of tumors. These can be subdivided into mechanical causes, about which we shall concern ourselves later; ionizing radiation, which we have already mentioned; thermal injuries, and finally, chronic irritation. We might for a moment consider the last of these causes, the role of chronic irritation in carcinogenesis. It is known, for example, that osteogenic sarcomas occasionally develop in fistulous tracts secondary to chronic osteomyelitis, which have been present for a long period of time. It is also known that occasionally tumors will develop at the site of ill-fitting dentures. The latter association has been questioned by some as indicating only the chance occurrence of cancers at this site. However, for the moment I think we should accept the view that chronic irritation may produce buccal carcinoma.

Some years ago, Dr. Ewing⁵ published six postulates which he considered necessary to relate mechanical trauma to the subsequent development of a carcinoma. The first of these is that there must be an authentic and adequate trauma to the part. This, of course, is sometimes extremely difficult to document. Very often injuries will be remembered as having occurred sometime in the past with no objective evidence to substantiate the claim. Patients are notoriously poor historians and trauma is of universal occurrence. It would, therefore, seem prudent to record the exact site and extent of trauma in any patient. It is necessary to show not only that the trauma occurred, but that it produced some local objective signs of its occurrence. In the book, *Disease and Injury* edited by Dr. Brahdy, there is an excellent chapter concerning the role of injury in the production of neoplasms by Drs. Crane and Decker⁶ of Philadelphia. In this chapter is mentioned the case of a man with a melanoma of the eyes who stated that 2 weeks prior to the diagnosis of this condition, he was struck on the forehead by a carton of cigarettes which slid off a shelf. He did not report this to his superior and sought no medical attention. As these authors point out, it is rather disturbing to note that unsupported statements of this kind are often accepted by a lawyer or a physician as a matter of fact. They point out that it is generally accepted that the

testimony of some objective observer, other than the interested party, is necessary to establish the fact that an injury did occur. The second of Dr. Ewing's points is that the previous integrity of the wounded part should be established. This, of course, can never be fully established, for the evidence necessarily rests on the testimony of the patient. The next postulate is that a reasonable period must elapse between the time of the trauma and the subsequent development of the tumor. As has been mentioned, one of the cardinal features of carcinogenesis is that a lag occurs between exposure to the carcinogen and the subsequent development of the tumor. In the human, this appears to be from 5 to 10 years and any tumor developing prior to this time must be considered with even more caution than usual in such cases. Dr. Ewing's fourth postulate is that there must be a continuity linking the symptoms of injury with those of the tumor. This is not an important point, but a continuity of symptoms supports the claim of a connection between the trauma and the subsequent tumor. Another, and seemingly obvious criterion, is the histologic proof of the existence of cancer. This requires a biopsy to actually prove that a cancer exists. Therefore, the presentation of a tumor mass, not otherwise studied, would not be evidence enough to establish the presence of a carcinoma. Finally, the tumor must occur at the exact site of injury.

Dr. Ewing's postulates, if adhered to, would certainly bring a considerable degree of reason to what is now a confused and oftentimes bewildering area of medicolegal relations.

As far as I can learn, in no case has there been adequate proof that a single injury produced a cancer. Blows to any portion of the body just do not act in this manner. On the other hand, it is well known that trauma with subsequent hemorrhage might well cause a local tumor mass to enlarge rather precipitously. As a matter of fact, local swelling following trauma often first directs a patient's attention to a tumor.

It has often been claimed that trauma has caused metastasis from a primary tumor, but this has not been demonstrated. It is hypothetically possible for repeated trauma to cause tumor cells to spread, but even this is doubtful. Certainly in the experimental animal such an occurrence is extremely rare.

I might summarize the statements on the effects

of mechanical trauma and the development of cancer by saying that single instances of mechanical trauma do not cause cancer and, furthermore, that trauma to an already-established cancer, under the conditions which exist in humans, also does not cause a cancer to metastasize. This is one of the few areas in medicine in which I think we are entitled to be rather dogmatic.

Internal Factors.—Concerning the factors arising within our internal environment, I would like to stress particularly the role of heredity in the development of cancer. Some tumors are known to be hereditary, such as the retinoblastoma and the carcinomas occurring in congenital polyposis of the bowel. Except for these examples, the subject in other respects is quite confused. Although all of us are aware of families in which multiple cancers have occurred, actually it appears that such may be the result of a random process. When it is realized that cancer causes one death out of seven, it can readily be appreciated that such a high incidence will frequently result in the appearance of multiple cancers in a single family. Considerable work has been done in the study of the familial dispositions to specific carcinomas, particularly carcinoma of the breast.⁷ Here there appears to be a slight increase in the number of cancers appearing in given families, but the increase, while significant, is not so great as to make one believe that heredity plays a very important role in this particular cancer. I might add that two studies published more or less simultaneously from different places take opposite sides on this question.⁷⁻⁸ There seems, however, to be no conflict in the reports which fail to show a familial incidence in carcinomas involving the pancreas, brain, or lung. Even animal experimentation has failed to give us insight into this important phase of carcinogenesis. We might sum up our knowledge on the effects of heredity in cancer by saying that, with the exception of several important tumors, among them the retinoblastoma and some carcinomas of the colon, it appears that heredity plays a minor role in the causation of cancer.

One other intrinsic factor which I shall mention briefly is the endocrine factor; it concerns the role that hormones play in the causation of cancer. It is well known that certain cancers respond favorably to the administration of exogenous hormones such as estrogens in the treat-

ment of carcinomas of the breast and prostate. The frequency of cancer of the breast has been attributed to the continuous hormonal bombardment of this organ throughout a large span of female life. The fact that cancer of the breast is more frequently encountered in nulliparous women also suggests that some hormonal factor is at work. The mechanism, however, by which this hormonal action causes cancer is unknown.

Comment

In rather short order, we have covered the various classes of etiologic agents in the production of cancer. There are a few things which I would like to stress concerning this continuously expanding field. I have discussed mainly the so-called immediate causes of cancer which, as pointed out, are becoming increasingly numerous. We must be continually on the alert for the appearance of new carcinogens.

I want to point out that we shall never find a single cause of cancer; for, just as many bacteria are implicated in infection, many etiologic agents are involved in the causation of cancer. It is possible, and in fact likely, that these numerous carcinogenic agents act through a common molecular or cellular mechanism to produce their effects. All that we can hope to do in our present state of knowledge is identify the carcinogens as they occur and do our best to control them.

Summary

The etiology of cancer includes poorly understood, complex, presently uncontrollable primary causes, such as cellular and molecular mechanisms. It also includes immediate causes of more current interest, such as viruses and trauma.

When considering the etiology of cancer, one should remember certain tenets: 1. Cancer is multicentric. 2. A time lag (probably 5 to 15 per cent of a lifetime) must elapse between exposure to a carcinogen and development of a cancer. 3. Different individuals respond differently to carcinogens.

To account for carcinogenesis, several hypotheses have been proposed. The irritation hypothesis popularized by Virchow lacks a suitable definition of "irritation"; the mutation hypothesis fails to account for many observed facts; the embryonic or cell-rest hypothesis fails to explain the development of tumors in experimental animals at almost any site selected for application of carcinogens; and the immunologic

hypothesis currently lacks sufficient evidence.

Immediate etiologic factors include the external and internal. The external are more obvious and controllable: Physicians everywhere can help identify external factors—chemicals, irradiation, viruses, and trauma—which may be causing cancer in their areas. Traumatic factors are extremely important because of associated litigation; their medical importance is relatively trivial, depending on the fulfillment of Ewing's six postulates: (1) authentic and adequate trauma to part, (2) previous integrity of wounded part, (3) reasonable elapsed time between injury and development of cancer (5 to 10 years in man), (4) continuity of symptoms linking injury and tumor, (5) histologic proof of cancer, and (6) occurrence of tumor at exact site of injury.

Internal factors include the genetic and endocrine. Except in certain important tumors, such as retinoblastoma and some carcinomas of the colon, heredity plays a minor role. Hormonal action seems to be important in cancers of the breast and prostate.

Likely the numerous carcinogens act through

a common molecular or cellular mechanism, but our present efforts should be directed to identification and control of immediate causes, internal and external.

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STATE MEDICAL JOURNALS AS ADVERTISING MEDIA FOR PHARMACEUTICAL COMPANIES

Austin Smith, M.D. *

AN ADVERTISER MAY CHOOSE a journal because he believes the readership response of the journal will justify the advertising, because he believes in the objectives of the organization sponsoring the journal, or because he believes in the journal's editorial objectives. In general, state medical journals are among the periodicals which meet one or more of these criteria. And in my opinion they should be supported by companies who wish to influence physicians and who are anxious to preserve freedom of choice as a way of life.

Over the years I have had many opportunities to observe the standards by which various medical journals accept manuscripts and advertisements. The state medical journals have been among those seemingly anxious to raise these standards to the benefit of their readers. This was something I advocated while associated administratively with the American Medical Association and it is an objective which I still support. Your State Medical Journal Advertising Bureau has provided leadership for many years in this area and its work, and the efforts of its president, Alfred J. Jackson, should be a source of pride and satisfaction to all of you.

Of course leadership can be effective only if it is given support. And support can come from several directions but the most important for many medical journals are the readers and the advertisers. Advertising in a medical journal reflects faith in readership response and faith in the objectives of the journal or its sponsor. Pharmaceutical houses have increasingly supported the state medical journals although recently there has been a decrease in advertising volume as most of the members of this audience know. Frankly, I think this recession is temporary; the trend will return to a continuation upwards as soon as the uncertainty of the effect of a fallout from recent investigations of the

drug industry is dispelled. In the meantime, faith on the part of the journal readers, their editorial leaders and their associated membership can help dispel this uncertainty.

On behalf of the pharmaceutical industry I would like to express appreciation for the interest shown in the recent hearings on drugs and on proposed legislation. The American Medical Association clearly saw the issues when its representatives testified. So in general did the state medical journals. Unfortunately, though, some people have failed to understand, or to report comprehensively the basic issues and the proffered testimony. They seemed to have lost the thoughts as they studied the words of those giving testimony. Furthermore, some have failed to wait until the story has been completely unfolded before they declared their views or urged action. For example, testimony has been offered on S. 1552 by members of the medical profession and some others but not yet by the Pharmaceutical Manufacturers Association. Nevertheless, even though the drug manufacturers have been giving careful thought to public welfare as it has been preparing its testimony and will reveal its positions on December 6, 7, and 8, some proponents of medical opinion have failed to wait for all the facts and already publicly have urged certain measures even though these subsequently may be shown not to be in the best interest of the medical welfare of this nation. Needless to say such actions have contributed to confusion for some and have been a source of glee for others.

Recently the PMA office studied the editorials and signed articles in medical journals on fourteen subjects ranging from drug brochures to drug research to S. 1552 to the investigation of the drug industry. This study embraced the period of July 1960 to September 1961. The sentiment was about four to one, according to these editorials and articles, in favor of the defense of

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certain long established principles. No one quarrels with the right to be critical of abuses. I have always been among those who believed—and still do—that abuses should be corrected and if criticism will effect such change, I always have—and will continue—raised my voice in protest. But at the same time I do believe fairness alone warrants seeking all of the facts, not just a few accusations.

Let me tell you the story of a wandering statistic to emphasize my point. It is not as important as currently proposed legislation but it reveals how confusion can be compounded.

This chronology traces a single statistic from its humble beginning to the pages of *TIME* magazine. It shows how some of the most highly respected physicians and communicators of our nation can innocently nurse a statistic into a complete distortion of the truth. It points out the moral that in criticising, including the pharmaceutical industry, physicians, scientists and writers should check their data with the same care as they would want accorded to life-saving treatment.

Each year, the "Drug Topics *Red Book*" publishes an exhaustive list of the products sold through wholesale and retail drug outlets. Several years ago at an annual meeting of the American Medical Association in San Francisco, a prominent Boston physician commented on figures from this publication as follows:

"An advertisement for a recent edition of the 'Red Book', which lists all of the 140,000 medicaments handled by pharmacists and available to physicians for patients, states that 14,000 new drugs were issued by drug manufacturers in 1953."

This and other statements in the address subsequently appeared as an article in a well-known national medical journal but unfortunately, in spite of his apparent care in describing the *Red Book* statistics, the author of the article used the word "medicaments" and failed to mention that these items include thousands of duplicate items, and range from prescription drugs to eyebrow pencil and perfume.

Three months after the article was published and at another annual meeting of the American Medical Association, a renowned physician, then professor of medicine at a New York medical school, delivered a lecture before one of the asso-

ciation's sections. This too, subsequently was published. Unfortunately the New York physician referred to the earlier article by the Boston physician and stated:

"... Therapeutic preparations are confusingly numerous and varied. In the lists of 1953, more than 140,000 medicaments were available to practitioners, and 14,000 new preparations were added during the year."

Regrettably, he used the label "therapeutic preparations" and he too eliminated the necessary description of the *Red Book* figures.

When this latter article appeared in print an acknowledge marketing research authority of New York City, wrote to the author to check the source of his figures. The author responded by telephone and told the researcher that he had obtained the figures from the statistical department of his university. The researcher then consulted the statistical department and learned that its source was the same figures referred to misleadingly by the Boston physician.

Having studied the marketing figures of the industry for many years, the market researcher knew that the annual new products introductions totalled somewhere near 400, not 14,000, and he so informed the New York doctor and the statistical department of the university. And yet, five years later (1961) the editor of a medical journal published an editorial deploring the number of drugs now available and stated:

"Five years ago, in an article (name of author) pointed out that to the already staggering total of about 140,000 medicaments in current use, of which an estimated 90% did not exist 25 years previously and 75% had been introduced within 10 years, some 14,000 new ones had been added during the current year . . ."

Thus, the distorted statistic returned to active service after a five-year furlough.

The market researcher who recognized the errors five years ago wrote to the editor of the editorial to give him accurate figures. Meanwhile the news bureau of this editor's university put out a news release based on the medical journal editorial as the editor was a member of the university staff. This release was picked up by the Associated Press, by the *NEWARK EVENING NEWS*, and by *TIME* magazine, among others.

Here is how *TIME* magazine in part used the statistic:

"No fewer than 150,000 preparations are now in use, of which 90% did not exist 25 years ago, and 75% did not exist ten years ago. About 15,000 new mixtures and dosages hit the market each year, while about 12,000 die off."

Comparing *TIME*'s version with the previous ones, it is evident that a new element of distortion was added. For the first time the figures are boosted to 150,000 preparations total and 15,000 added per year. *TIME*'s use of the words "new mixtures and dosages" may look like a step toward accuracy but to me they merely confirm ignorance of the actual nature of the *Red Book* listings. No indication is given of the source of the information that "12,000 die off" each year.

As an isolated problem the above case is scarcely cause for panic. However, it is disturbing as one more episode in a long history of factual distortions about one part of this country's health picture, the prescription drug industry. And I mention it to the members of this audience because of the nature of the work and because there is need for all of us to be properly informed about the elements of medical care and their costs.

A classic case of distorted statistics began on December 7, 1959, when the chairman of the Senate Subcommittee on Antitrust and Monopoly, discussing costs of prednisone during the recent drug price hearings turned to an associate in the Senate hearing room and asked, "What is the percentage of the markup from \$1.57 to \$17.90?" In reply Dr. John Blair said:

"Mr. Chairman, it is 1,118 per cent markup, roughly 11 times . . ." Mr. (Francis) Brown: the president of Schering Corporation, who was in the witness chair retorted: "If I may be permitted to do so, I would like to say I consider this not to be the proper relationship, because this does not include the expenses of doing business which I have outlined. This only includes the bare factory production costs . . ."

In spite of Mr. Brown's explanation the result of the question and reply was immediate, predictable, and irreversible. The nation's press promptly headlined the raw percentages, and converted markup into profit. "PROFITEER-

ING CHARGED TO DRUG FIRM", shouted the *PHILADELPHIA INQUIRER* (December 8, 1959). "DRUG FIRM TOOK MARKUP OF 1,118 P.C., PROBERS SAY" proclaimed the *BALTIMORE SUN* (December 7, 1959). In the stories, but lost under the weight of the headlines, was the qualification that reference to this markup did not include most of the cost of business. Lost was Schering President Brown's statement to the press that his over-all profit was 16%, and that his prednisone profit is probably around 12%.

The *Baltimore Sun* commented on this and other arithmetic as follows:

"The subcommittee contended that research costs for Schering were about 8½ per cent of its sales last year while the industry's distribution costs averaged 23½ per cent.

"Add 8½ per cent and 23½ per cent," the Tennessean commented, "and it's a long way from 1,118 per cent."

The serious subject of fatalities during clinical investigation of drugs was also put through the wringer of statistical distortion during the drug hearings. A highly publicized hearing-room debate took place during discussions on the oral anti-diabetic 'Diabinese'. An eminent physician included in his prepared statement for the hearings the following sentence:

"At the time of application to the FDA some 2,000 case reports were submitted and despite the inclusion of 43 deaths and a number of instances of jaundice the drug was passed for public sale in 1958."

Fortunately, some of the press reports include the strong denial of this figure by other medical witnesses. The *WASHINGTON POST* (April 28, 1960), for instance goes on to say:

"Later, he (the accusing physician) told a reporter that only eight deaths could be traced to the drug."

But a serious loss of public confidence both in the drug and in the judgment of their physicians resulted according to other testimony presented on subsequent days. The drug industry has frequently been the butt of criticism about "misleading" promotion. But the companies would have to go far to outdo the misrepresentations put forth by some of their critics. A prime example occurred during the drug hearings when a testifying physician stated:

"An example of a big promotional idea was that of Smith, Kline & French who in October, 1957 sent this assorted sample package of drugs to my office, and it is assumed to all 150,000 doctors' offices throughout the country, and as shown here in the statement, the wholesale cost of these drugs amounts to \$18.99. The postage alone — 4 pounds — amounted to \$1.05. When estimated for all 150,000 doctors, it comes to the wholesale cost of the drug, \$2,248,500 and the postage at \$157,000 making a total for that one promotional campaign of slightly over \$3 million."

The critic's assumption was of course completely erroneous. The distribution of the packet was limited to some 6,000 physicians, mostly new doctors being introduced to SK&F products, and cost not three million dollars but around \$100,000.

A much more serious case of statistical inaccuracy occurred more recently. A former participant in the drug hearings was being questioned by a Senate committee. He commented on drugs among other things. In preparing a story about this hearing, United Press International stated on May 31:

"About 24 cents of every dollar that the American consumer spends on prescription medicine is used by the drug makers to advertise and promote their products. Paul Rand Dixon, Chairman of the Federal Trade Commission, gave this statistic to UPI following recent testimony before a House committee . . ."

Several errors were built into that figure. The reported figure covers everything from advertising to warehouses to returned goods. The importance of this distinction can be seen in the figures published in the June 13, 1960 issue of *Chemical and Engineering News*:

"The bill for promotion and advertising? Not out of line, according to company figures. Parke, Davis spent less than 3% of sales in 1959 for promotion and advertising. At Abbott, the bill for advertising in 1959 ran about 6% of sales. Upjohn says its outlays for such activities in 1959 ran about 6.6% of sales, down from 7.6% in 1958 . . ."

The United States is today embroiled in fundamental conflict over the methods of providing health care. Our individual and national health

hang in the balance. Under attack is the free practice of medicine and the competitive enterprise system of supplying health services. Only through full knowledge of the most accurate information obtainable will the American public be able to make the wisest decisions. The debate cannot help being emotional, but there is absolutely no room for dubious statistics.

We in the medical profession and the pharmaceutical industry have been accused too often of being ultra-conservative. I do not think we can be justly accused of being obstructionists; we only ask for the privilege of being certain that change is for the better before we adopt it. In fact, often we are the ones to advocate change in the health care field. I can find nothing wrong with conservatism when life is at stake. Perhaps the medical brand of conservatism is not understood. If so, let me paraphrase a few sentences from a paper given before the Chicago Literary Society. It was entitled "The Reluctant Conservative."

"Conservatism has been said to reflect a discriminating respect for the wisdom of one's ancestors. Few people are born respectors of this wisdom or show it in their childhood and youth, but experience tends to develop it. 'In time a man comes to realize that prevailing customs would probably not have come into use had they not once served a purpose and would probably not have endured had they ceased to serve that or some other purpose.'

"Conservatism that is intellectually respectable boils down to the conviction that existing institution, customs, rights, privileges and the like are a closely interrelated whole, reflecting the experience of many generations, and by and large, they are good rather than bad.

"The thoughtful conservative, though he admires the sometimes awesome achievements of human reason as much as any liberal, is unwilling to submit himself entirely to the guidance of his own reason or the collective reasoning of his fellows. He has observed the withering effect of time on the fruits of reason — the disturbing frequency with which a scheme that appears reasonable one day seems less so the next and quite unreasonable a week or a month or a year later

... he believes that the very faculty of discriminating should be used with discrimination."

Maybe the point I really have been trying to make today is simply this: The pharmaceutical industry believes state medical journals to be among the media by which physicians can and should be reached effectively and truthfully. It

believes also that any journal that commands respect should exercise restraint which is not to be confused with censorship—over its contents so that any acclaim for leadership is earned through wise and judicious appraisal. Or in other words, as for the reluctant conservative, those responsible for the printed word should exercise the faculty of discriminating with discrimination.

DEDICATORY SPEECH AT T. H. BARTON INSTITUTE — NOVEMBER 16, 1961*

A. M. Harvey, M.D.

*Presented at dedication of the T. H. Barton Institute for Medical Research
at the University of Arkansas Medical Center in Little Rock
on November 16, 1961*

It has long been the custom when a new ship is launched from its slip, to break a bottle of champagne on its bow and to speed it on its way. Nothing so dramatic happens when a new Research Institute is dedicated — an event of far greater importance in its ultimate impact on our way of life. Tradition decrees, on the contrary, that there shall be a dry baptism of words from someone like myself who is totally unaccustomed to such a task. However, in spite of my completely amateur standing, I accepted the invitation to participate in this program with great enthusiasm because it represents such an important landmark in the growth and development of the University, the city and this state.

I should like to take as my theme the meaning of Creativeness in Medicine and to say something about its changing face. Dr. Alan Gregg pointed out that creativeness has many aspects and he called attention to two of these: First the forerunner of creativeness seems to be the perception of relationships not readily apparent; and then, almost in a flash comes the more active phase—the drive to put these freshly perceived relationships into a new arrangement. He gives two examples of such creative synthesis and I shall add a third. The astronomer Halley, passing a graveyard every day, suddenly realized one morning that if he took the ages of all the human beings buried there, he might formulate from such a sample a probable life span for much larger groups of the human race. The resulting arrangements of these, until then unrelated facts on the scattered gravestones, led to what we now call life tables. Such life tables have made possible

the life-insurance business and its unmeasured benefits to man.

When the great mathematician Gauss was a little boy his teacher gave this problem to the class: “What is the sum of 1 plus 2 plus 3 plus 4 plus 5 plus 6 plus 7 plus 8 plus 9 plus 10. All the other boys began to add the figures given, but little Gauss held up his hand. “What is the matter?” the teacher asked. “I have the answer,” said Gauss. “You have heard this problem before,” the teacher said sourly. Gauss replied that he had not. “Then may I have the honor of knowing the answer?” “55”, said the little boy. “How do you know?”, said the teacher, his sarcasm changed to curiosity. “Well, I just noticed,” said little Gauss, “that the sum of the first figure and the last figure, 1 and 10, is 11, and that inside those figures, the sum of 2 and 9 is 11, of 3 and 8 is 11, of 4 and 7 is eleven, of 5 and 6 is 11; so I thought that half the number of terms times the sum of the first and last figure would be the answer.” Thus a mathematical principle was born from the courage to follow a hunch.

In the Galvani home in Bologna it was the custom to suspend frogs’ legs by a copper wire from an iron balustrade. Galvani observed that they twitched when blown by the wind against the iron. This observation led to many important experiments, including those of Volta on the production of electrical currents by contact of 2 dissimilar metals and thus to the invention of the electric battery. Such were the observations that led ultimately, directly or indirectly, to the invention of the telegraph, the telephone, radio broadcasting and television.

This perception of relationships and the drive

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to rearrange or reformulate them — you will all recognize as cardinal elements in the creativeness of medical research.

Now let us look at the changing face of medical research. When I graduated from medical school some 25 years ago most research was carried on by dedicated individuals working in modest facilities usually in a university or medical school and deriving their support from the institution. The equipment was relatively simple and often homemade. The studies were usually circumscribed because of lack of necessary technical apparatus and were done on time not demanded for teaching, the care of patients and other academic duties. Out of such relatively simple conditions came many important scientific contributions, such as the discovery of insulin by Banting and Best and the use of liver in the treatment of pernicious anemia by Minot. But revolutionary changes have taken place in the past quarter century in the techniques of research and have resulted in the wealth of therapeutic measures or wonder drugs now available to the physician.

As research endeavors increased and multiplied it became evident that many of the problems in the health and medical areas were dependent for their solution upon the knowledge and the methods of the basic chemical, physical and biological sciences. As pointed out by Rappaport in a recent address: The quantitative methods which were employed in these disciplines and the technical apparatus which they created were rapidly adapted to the research needs of the basic medical and later, clinical sciences and to public health and preventive medicine. Such developments opened up previously untapped reservoirs of knowledge which have quickly brought understanding of many of the mechanisms of normal life, and of disease. In a relatively few years profound changes have occurred. The team effort has come into being as no man alone can master the many intricacies of any set of problems. The coordination of effort has created study groups which have pooled their thinking and efforts without, in most situations, hampering the incentives, interests, or inventiveness of the separate contributors.

During the period in which science has made it possible to explode into and explore outer space equally penetrating and complicated explorations are being made into the inner secrets

of the unit of living matter itself, the cell. For example developments in the field of biochemical and medical genetics will have a profound impact upon our knowledge of reproduction and congenital anomalies, chemical as well as anatomical. The discovery that many diseases may be due to the genetically determined absence of reduction of a single enzyme adds importance to new concepts of growth and physiological and biochemical function.

In a profession where one has the life of human beings placed each day in his hands you can well imagine what a tremendous experience it has been to be a first hand witness during these last 25 years to the development of antibiotics and chemotherapeutic agents that have revolutionized the treatment of infections; the technical developments in surgery, anesthesiology and in the availability of blood for transfusion which have led to such dramatic achievements in the treatment of both congenital and acquired heart disease. The development of the adrenal steroids, the anti-thyroid drugs, the antihypertensive agents, the potent diuretics used in the treatment of heart and kidney disease, the vaccines for poliomyelitis and countless new diagnostic techniques. In my medical school days psychiatry was a simple affair, disposed of by a few lectures and the demonstration of a few mental cases. The word psychosomatic was not a part of our medical vocabulary and the tranquilizers were undreamed of. These and many more events represent the rapidly changing face of creativeness in medicine. As Dubos has pointed out, this rapid increase in the number and effectiveness of therapeutic and prophylactic methods available to physicians is creating problems for which neither medicine nor society is prepared, because they have no precedent in history. He points out for example that vaccination against viral diseases will soon present a test for medical wisdom. Techniques can now be developed for producing and purifying almost any kind of virus, this making possible effective vaccines for the large population of viral diseases. But clearly there are limitations both biologic and economic to the numbers of vaccines that can be used in practice. The question is no longer, therefore, the technical one of developing methods of vaccination, but rather the ethical one of deciding against which diseases to provide protection. This decision involves social as well

as medical factors. Thus whether we want to or not the physician will be compelled by the very power of the means at his command to accept increasingly larger social responsibilities. He will have to develop a philosophy taking into consideration not only the welfare of the individual patient, but the interests of the community and indeed the future of the human race. When theoretical physics became an instrument of political power after Hiroshima, physicists were forced to assume responsibility in politics. Likewise, Dubos points out, the power of physicians over life and death has become so great that medicine can no longer be considered apart from social philosophy.

This is the most demanding era of our history. The future in medical research, medical education, and medical care, which go hand in hand, must be built as energetically as the other aspects of our national economy such as industry, agriculture, housing and transportation. One of the greatest challenges of the present is that of creating public understanding of and financial support for the invaluable contributions which medical research can make to the well being, comfort and happiness of our country and the extent to which we can help others less fortunate to obtain these benefits.

In making this Institute possible a focus of creativeness has been established which will have important results not only in the development of

new knowledge, but is absolutely essential in maintaining the quality of the educational program in the School of Medicine and the standards of medical care and practice in this city and state. Most important is that this venture has been a joint effort—of private funds from the Barton Foundation, the Buchanan Foundation, the Lutterloh Trust and among other donors the Pulaski County Medical Society. Joining with them has been a matching grant from the National Institutes of Health. This indicates a broad appreciation in the community of the vital importance of this activity and in such a setting there will be that freedom of action which is so essential to the pursuit of new knowledge.

Medicine is the oldest learned profession in the world and is thus rooted deeply in the past. All of the accumulated knowledge gained by our predecessors is handed down to each successive generation. Every doctor stands as it were upon the shoulders of his predecessors—his birth right, which he receives free of charge, is the total sum of medical knowledge that has been created by those who have gone before him. Thus every physician should feel the responsibility in return to add some new knowledge—no matter how small an amount—to this heritage. It should be a source of great pride to all who have participated in the creation of this beautiful Institute that the faculty of this University is now in such a wonderful position to fully discharge that responsibility.

WHAT'S NEW?



THE FUTURE PHYSICIAN CLUB

L. D. Massey, M.D. *

TODAY MEDICINE STANDS at the crossroads in the talented young high school student's mind. Students may be torn between desire for medicine, dentistry, or pharmacy, as a life's work or to follow the stirring bids he will receive from other scientific fields and big business. On the one hand he will face 12 to 16 years of hard work and sacrifice, and on the other, the promise of scholarships and a secure position with retirement when his education is completed.

The Association of American Medical Colleges and the United States Bureau of Census have just recently discovered this startling figures, in 1949 with the population of the United States at 149.2 million, 24.4 students per thousand were applying to medical schools across the country. In 1959 with the population 177.1 million, only 15 students per thousand applied to medical school.

One does not have to be a statistician to realize that if this trend continues, we shall face a severe physician shortage in the coming years. This is the basic reason the future physician club was founded. To put it into words of the far sighted man, I feel we must recruit and sell medicine as a career to these talented high school students in direct competition to the other more promising career financially. I feel that every dedicated doctor who loves his work and man-

kind should be a walking advocate of the future physicians club.

I would like to tell you of our efforts in the Osceola Kiwanis Club, Osceola, Arkansas, in the year 1960-61. You are probably familiar with the physician club started by the Kiwanis Club in Albuquerque, New Mexico, and the association of the Uptown Kiwanis Club of Memphis, Tennessee, Doctor Lawrence Cohen of Memphis, Tennessee, and the University of Tennessee Colleges of Medicine that gave time and effort to helping to carry on the program of the Osceola Kiwanis Club.

We went to the Superintendent of Schools who called in the principals of the High School and Junior High, and then gave it to the students of 9th, 10th, 11th, and 12th grades who accepted the challenge, and a base of some 20 students, was formed into the club. They were carried through the University of Tennessee College of Medicine, Dentistry, Pharmacy and School of Nursing, that they might see with their own eyes what they were choosing for a life's work. They were later carried into Baptist Memorial Hospital, Memphis, Tennessee, where programs consisted of motion pictures and lectures from abdominal Aneurysm surgery, to the tedious ear operation.

Then on the 1st and 3rd Wednesday in the

* Osceola, Arkansas

Osceola High School a program of films designed for the student education by the A.M.A. were shown and discussed. The film "I Am a Doctor", was also shown that they could understand the many sections of the federal services, the public health, industrial medicine, and now atomic medicine and space medicine. This group continued to meet at regular intervals with counseling of the doctors and registered nurses and the pharmacists. With the film program, the student studied the heart by use of plastic models; the heart sounds by record and tape recording and the electro cardiogram tracings. They viewed films on the resuscitation of the newborn, and external message for Cardiac Arrest. Anatomy was learned from use of the plastic man.

They attended films on the M.D., U.S.A. and the M.D. International and heard lectures from a London Nurse as to the problems of medicine used in war conditions as she had used in World War II.

They were invited to the Air Base hospital and saw at first hand the workings of a military hospital and the preparation for emergencies at an air base.

Some effort has been made in the placement of girl students in Hospitals that they could learn first hand of the nursing problem. The pharmacist student has observed in Drug Stores and

medical students along with dental students are being guided through summer months in such things as pertain to medicine that time will allow. All of the students have been made aware of different student aid funds that are available in this area, that they can, while in high school, look forward for expenses to their college education.

Having consulted the Dean of the University, the students have been made aware of the subjects that they should take in high school to prepare themselves for pre-medical education. These subjects being English, Mathematics, Science, and foreign languages.

After working with this group, I feel the 9th, 10th, and 11th grade students make up the core of what students are thinking about as they move into the 12th grade. They have already formed opinion as to what they wish to do in their life time in the many divisions of medicine.

The Student Physician Club elects its own officers and arranges its time of meeting, and to those who follow the plan the officers issue a membership card to the Student Physicians Club.

I feel that it would be a most important activity if all of the county medical societies would consider, and the state medical society would give assistance toward forming these groups over the Arkansas area.

TEACHING SEMINAR

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A REVIEW OF SOME INBORN DISORDERS OF METABOLISM

Manford D. Morris, Ph.D.*

PROGRESS IN THE DISCOVERY, detection, and diagnosis of congenital metabolic diseases, particularly within the last decade, has emphasized their increasing importance in clinical practice, and in some cases, has lead to specific therapy. Examples of these diseases extend from the benign meliturias (pentosuria and fructosuria) to the almost uniformly fatal maple syrup urine disease. At present there are about one hundred genetic metabolic disorders described; these are summarized in Table 1 (see references 1-3).

The common basis of this diverse group of biochemical anomalies is the "one gene-one enzyme" theory first clearly stated by Beadle (4), but conceived as early as 1908 by Sir Archibald Garrod in the Croonian Lectures (5). In its modern form this concept is based on the fact that the genetic material within the nucleus, deoxyribonucleic acid, through another nucleic acid, ribo-nucleic acid, directs the synthesis of all proteins whether structural or enzymic. Thus, all heritable metabolic disorders can be related to an abnormality in the biosynthesis of a specific protein (s).

These synthetic defect(s) may be expressed either by the absence of a protein or by the formation of a protein with an abnormal structure. An example of the former is congenital afibrino-

TABLE 1

- I. Disorders, of Blood Protein Formation
 - A. Absence of specific protein(s)
 1. Agammaglobulinemia
 2. Analbuminemia
 3. Afibrinogenemia
 4. Ceruloplasmin deficiency (Wilson's Disease)
 5. Clotting deficiencies
 - B. Formation of an abnormal protein
 1. Hemoglobinopathies (Sickle cell disease, Thalassemia, etc.)
- II. Disorders of Carbohydrate Metabolism
 1. Glycogen storage diseases
 2. Diabetes
 3. Galactosemia
 4. Pentosuria and Fructosuria
 5. Erythrocyte dehydrogenase deficiency
- III. Disorders of Amino Acid Metabolism
 1. Phenylketonuria
 2. Cystinuria
 3. Cystinosis and DeToni-Fanconi
 4. Tyrosine anomalies
 5. Maple syrup Urine Disease
- IV. Disorders of Metabolism of Lipids and Related Substances
 1. Essential familial hyperlipidemia
 2. Sphingolipid Storage Diseases
 - a) Tay-Sachs Disease
 - b) Nieman-Pick's Disease
 - c) Gaucher's Disease
 - d) Leukodystrophy
 - e) Congenital Adrenocortical Hyperplasia
- V. Disorders of Porphyrin Metabolism
 1. Erythropoetic porphyria (congenital)
 2. Hepatic porphyria
- VI. Disorders of Purine and Pyrimidine Metabolism
 1. Gout
 2. Beta-aminoisobutyricaciduria

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genemia where there is a virtual absence of the protein fibrinogen. A protein "molecular" abnormality is best exemplified by sickle cell disease which Pauling and coworkers (6) have described as "molecular disease".

Among the major reasons for the recent advances in the understanding of heritable metabolic disorders has been the application of biochemical technology in both the research and clinical laboratory. Paper chromatography, paper electrophoresis, and techniques for the measurement of enzyme(s) activity have contributed immeasurably to the detection and quantitation of both normal and abnormal tissue, blood or urine constituents. These techniques are sensitive, reproducible and specific. Numerous clinical applications have been reported (7). For example, an enzyme kit is currently available commercially for the diagnosis of galactosemia (8).

Several of the most common and best understood "inborn errors of metabolism" can be successfully managed. They further illustrate the different modes of biochemical expression which inevitably must influence the informed clinical management. It is the purpose of this paper to review some of the congenital metabolic diseases and to emphasize the biochemical nature of the defect and its relation to the specific therapy where possible.

1. Molecular Defects

Although the existence of fetal and adult hemoglobins had been recognized for about one-hundred years, it was the discovery of a second type of adult hemoglobin by Pauling and coworkers in 1949 (6) that revolutionized the thinking with regard to the hemoglobinopathies. These workers showed that the hemoglobin in patients with sickle cell disease differed electrophoretically from the normal adult hemoglobin and suggested an amino acid difference could explain the results. Subsequent enzymic degradation studies of hemoglobin obtained from normals and patients with sickle cell disease revealed a difference of only one amino acid in the entire molecule of about 50 amino acids. Of considerable interest is the finding that another abnormal

hemoglobin, hemoglobin C, was also found to differ from normal hemoglobin by only a single amino acid. In both abnormal hemoglobins this amino acid "exchange" occurred in precisely the same position of the hemoglobin molecule (9).

A portion of the polypeptide chain of hemoglobin is shown in Figure 1 and illustrates the single amino acid difference among the three hemoglobins. The diagnosis of sickle cell disease can be suggested by the sickling of red cells and confirmed by hemoglobin electrophoresis.

Thus, the entire clinical picture in sickle cell disease can be traced to a single defect in the synthesis of an extremely important protein. At least 6 other abnormal hemoglobins are now recognized but the molecular defect in these is incompletely understood.

2. Absence of a Non-Enzymic Protein

Heritable metabolic conditions may also be manifest by the absence of a protein. There are a number of clinical examples probably including afibrinogenemia, analbuminemia, Wilson's Disease (ceruloplasmin deficiency) and agammaglobulinemia. The last defect is probably the most frequent and best defined. Bruton (10) in a careful study of the serum proteins of infants and children who had repeated infections showed, by electrophoresis, the absence of the gamma globulin peak. Subsequent studies by a number of investigators have shown these children are incapable of normal antibody production when challenged by a variety of antigens. This defect in antibody protein production appears to be associated with the absence of plasma cells, and hypoplastic lymph nodes.

The diagnosis is suspected in any child with repeated severe infections. A very low or absent gamma globulin peak by paper electrophoresis of serum proteins is helpful confirmatory evidence. The absence of normal isohemagglutinins or absent antibody response to exogenous antigens (diphtheria or typhoid vaccine challenge, etc.) is also helpful. The most reliable confirmatory evidence is obtained by immunochemical measurement of plasma gamma globulin levels; these

FIGURE 1

———— Leucine - Threonine - Proline - Glutamic Acid* - Glutamic Acid - Lysine ————

A portion of a beta peptide chain in normal adult hemoglobin. The starred glutamic acid is replaced by valine in sickle hemoglobin (hemoglobin S) and by lysine in hemoglobin C.

children almost invariably have levels below 150 mg σ_o .

3. Deficiency of an Enzymic Protein

a) Phenylketonuria

Phenylketonuria is perhaps the most important disease in this category. In this condition, a single enzyme defect is almost always associated with mental retardation.

The abnormal biochemical findings in patients with this disease include an elevated phenylalanine concentration in the plasma and urine and the excretion, in large amounts, of abnormal phenyl acids: the principle one of these is phenylpyruvic acid, formed by transamination of phenylalanine. Hydroxylated acids (phenolic acids) also occur in excessive amounts.

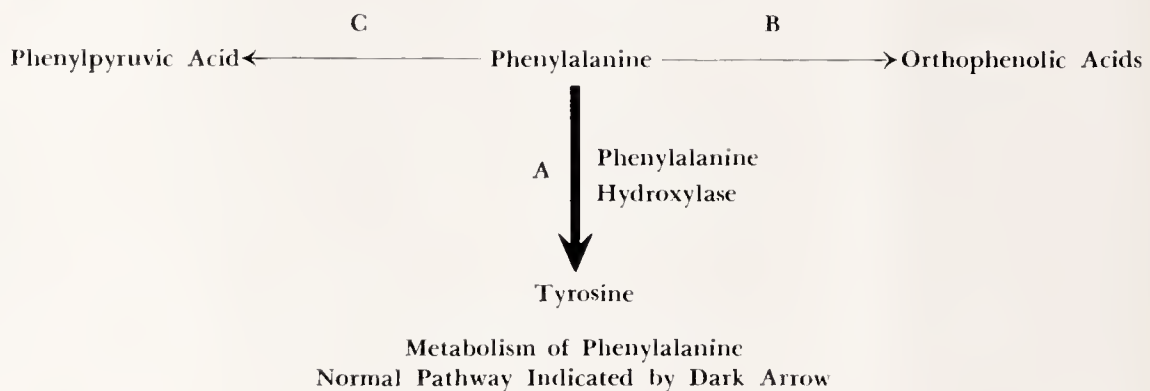
The metabolism of phenylalanine (Phe) in ab-

depends upon early diagnosis and the institution of a diet low in Phe.

b) Galactosemia

Galactosemia is an hereditary disease in which there is an inability to convert galactose to glucose. The steps in the normal transformation of galactose to glucose are outlined in Figure 3 (The required enzymes are normally present in red blood cells). The metabolic defect in galactosemia is a decrease or absence of uridyl transferase activity (Reaction 2, Fig. 3), as a result of which abnormal amounts of galactose and/or galactose-1-PO₄ accumulate in tissues. This results in liver cirrhosis, renal damage with aminoaciduria, cataracts, and mental deficiency. The last abnormality may be conditioned in part by low blood glucose levels which in some way are related to

FIGURE 2



breviated form, is shown in Figure 2. It can be seen that this compound is normally converted to tyro since by the enzyme phenylalanine hydroxylase, which is present in high concentration in the liver. In patients with phenylketonuria the absence of a single enzyme, phenylalanine hydroxylase, leads to an accumulation of Phe in tissues, plasma and urine. This increased Phe concentration leads to the accentuation of an alternate metabolic pathway, and results in the formation and excretion of abnormal Phe metabolites. One of the principal abnormal metabolites is phenylpyruvic acid which forms the basis of both the ferric chloride and Phenistix® test for the diagnosis of phenylketonuria. A specific blood test for Phe is thought to be more reliable by some investigators.

The accumulation of Phe or its metabolites usually results in irreparable brain damage by the end of the second year. Successful treatment

or conditioned by the elevated blood galactose levels. The diagnosis is usually suspected in an infant with hepatomegaly, cataracts, CNS dysfunction or retardation and glycosuria. The urine characteristically reacts with Clinitest® and not Clinistix® indicating that the reducing substance is not glucose. Measurement of blood sugar by copper reagents reveals normal values. However, when the specific glucose oxidase test is used, hypoglycemia is frequently observed, particularly postprandially.

Most of the tissue damage occurs in early infancy and childhood because of the large galactose intake associated with milk feeding. If the diagnosis is made early the institution of a galactose-free diet will prevent the tissue damage which otherwise would occur. As galactosemic children grow older, galactose tolerance tends to improve because an alternate metabolic pathway for galactose-1-phosphate forms whereby uridyl transferase

enzyme can be bypassed. This change in metabolism is due to an increased activity of the enzyme galactose pyrophosphorylase (similar to glucose pyrophosphorylase in step 4 of Figure 3), which is deficient at birth but increases with age.

c) Congenital adrenocortical hyperplasia

Virilizing adrenocortical hyperplasia is also caused by the absence of enzyme(s) which are necessary for the formation of the adrenocortical hormones cortisol (hydrocortisone) and aldosterone.

Cholesterol is the major, early precursor of these hormones via conversion to pregnenolone. This transformation is stimulated by ACTH. Pregnenolone is converted to either 17-ketosteroids or to progesterone and this latter compound is the principal precursor of hydrocortisone and aldosterone. The formation of cortisol requires stepwise hydroxylations at C-17, C-21, and C-11 and the last 2 hydroxylations are necessary for aldosterone synthesis. These two hormones are the major glucocorticoid and salt regulating steroids in man.

In patients with adrenocortical hyperplasia two patterns of hydroxylase enzyme deficiency have been described. In the most common variety of this disease, there is a deficiency of 21 hydroxylase activity. This results in a decreased synthesis of cortisol which results in an increased secretion of ACTH and leads to an excess production of 17-ketosteroids. A quantitatively more deficient group of these patients also have salt loss and circulatory collapse during early infancy.

In the second rarer clinical form of the disease patients manifest hypertension in addition

to clinical virilization. These patients have a deficiency of 11-hydroxylase activity and there is increased excretion of 11-deoxycorticosterone and 11-deoxycortisol and their metabolites.

The rationale for the therapy of this disease is suppression of ACTH secretion by replacement of the normal adrenocortical hormone, cortisol. In the salt losing type it is also necessary to administer a mineralocorticoid such as DOCA during early childhood.

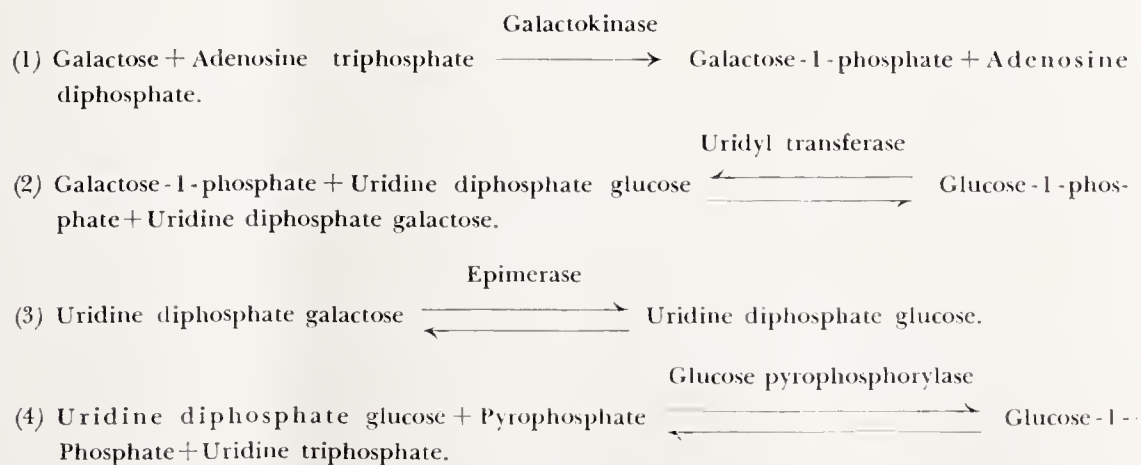
Discussion:

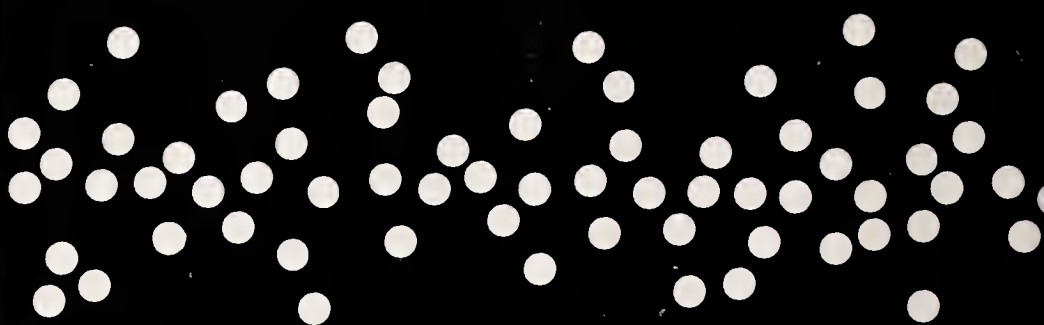
There is, even in normal individuals, a wide variation in the enzyme make-up of a given tissue, but the enzymatic "reserve" is sufficient for normal function. Hence, overt anomalies, such as found in congenital metabolic disease, become manifest only when there is a significant reduction or "absence" of a given enzyme. The consequences of such a reduction may be the formation of an abnormal protein (hemoglobin S), the lack of a circulating protein (agammaglobulinemia), or the absence of catalytic activity (an enzyme).

In the case of sickle cell disease an abnormal protein is formed which in turn affects many structures and functions and no therapy is known. The deficiency of a circulating protein, such as found in agammaglobulinemia, can be corrected by provision of the protein.

When a catalytic protein is deficient, the biochemical abnormality may be reflected by the production and accumulation of either a normal or abnormal metabolite. In both phenylketonuria and congenital adrenal hyperplasia alternate metabolic pathways are formed and abnormal pro-

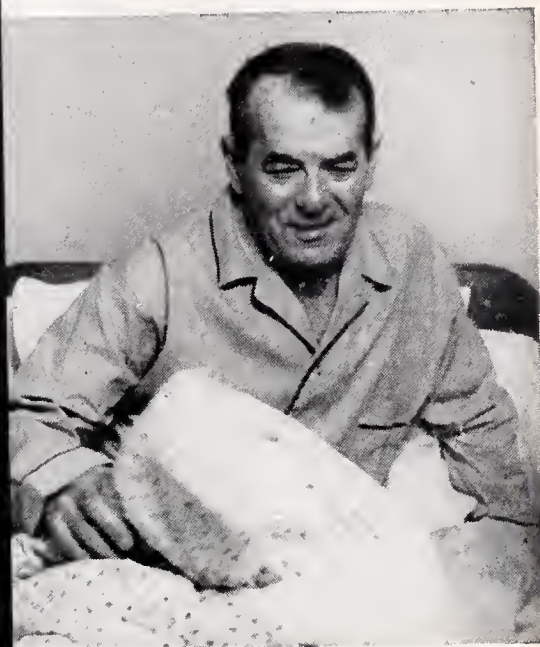
FIGURE 3
The Conversion of Galactose to Glucose






Thanks to 135 tiny "doses" throughout the

At night, the arthritic wakes up comfortable



Morning stiffness may be reduced or even eliminated as a result of therapy with the only steroid in long-acting form. And the slow, steady release of steroid makes it possible in some cases to reduce the frequency of administration and/or the total daily steroid dosage.

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Medules^{*}

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ducts accumulate. In galactosemia increased amounts of a normal metabolite are produced. The treatment of phenylketonuria and galactosemia are by dietary restriction of the offending agent. Replacement therapy by provision of the normal hormone(s) is the treatment of congenital adrenal hyperplasia; by virtue of the homeostatic control on ACTH production, by cortisol, a normal ACTH secretion occurs.

Summary:

Some of the congenital metabolic diseases have been reviewed. The basic mechanism of the biochemical defect has been emphasized.

ACKNOWLEDGMENT

The author wishes to express his gratitude to Dr. T. C. Panos of the Department of Pediatrics for his assistance in the preparation of this manuscript.

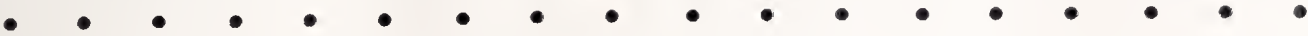
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ELECTROCARDIOGRAM

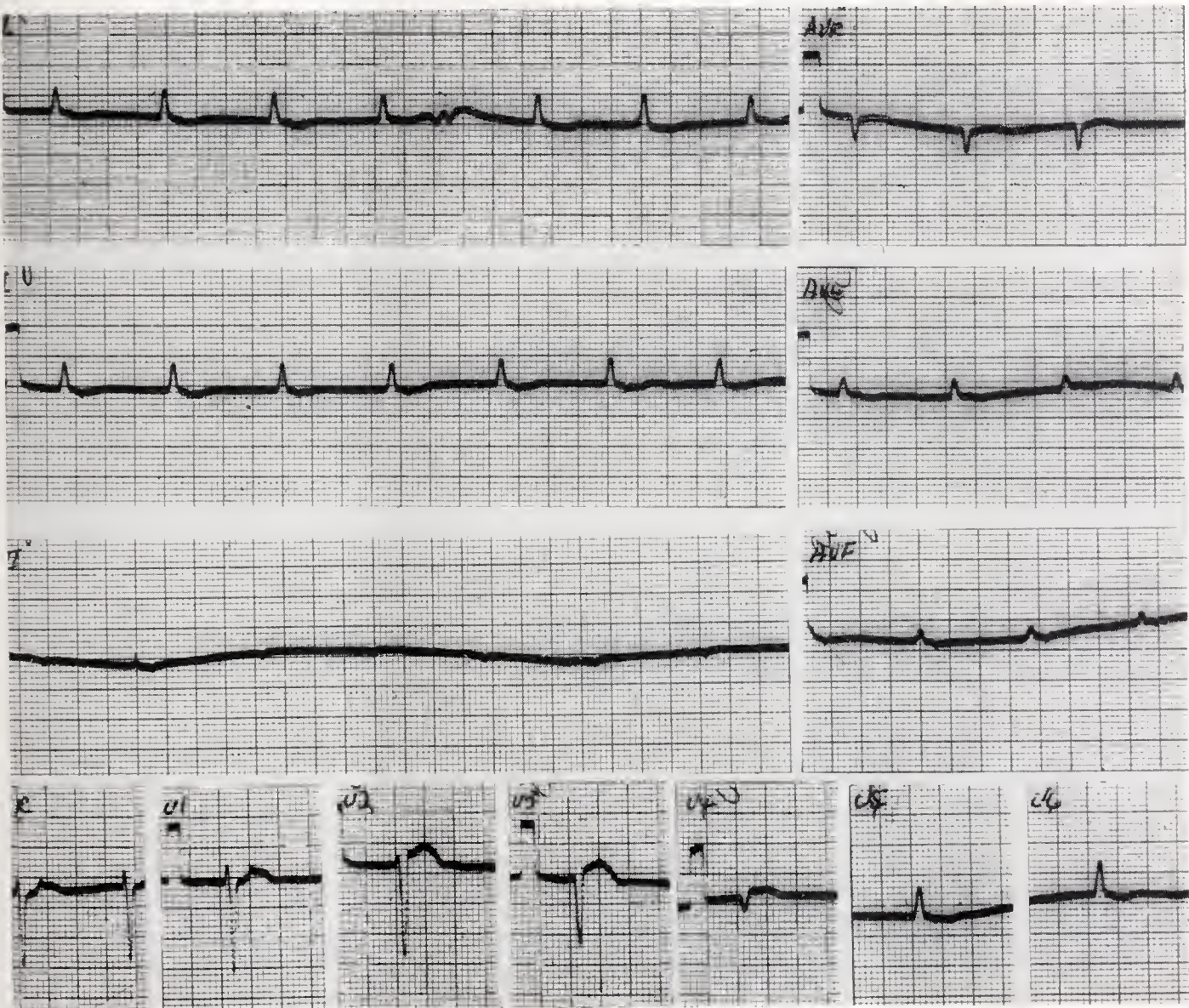
OF THE MONTH



WHAT IS YOUR INTERPRETATION?

AGE: 82 SEX: M BUILD: MEDIUM BLOOD PRESSURE: 130/90
MEDICATION: Digitalis prior to admission, amount not known.
HISTORY: Patient states he has had "heart attack." No other information.

Answer on Page 73

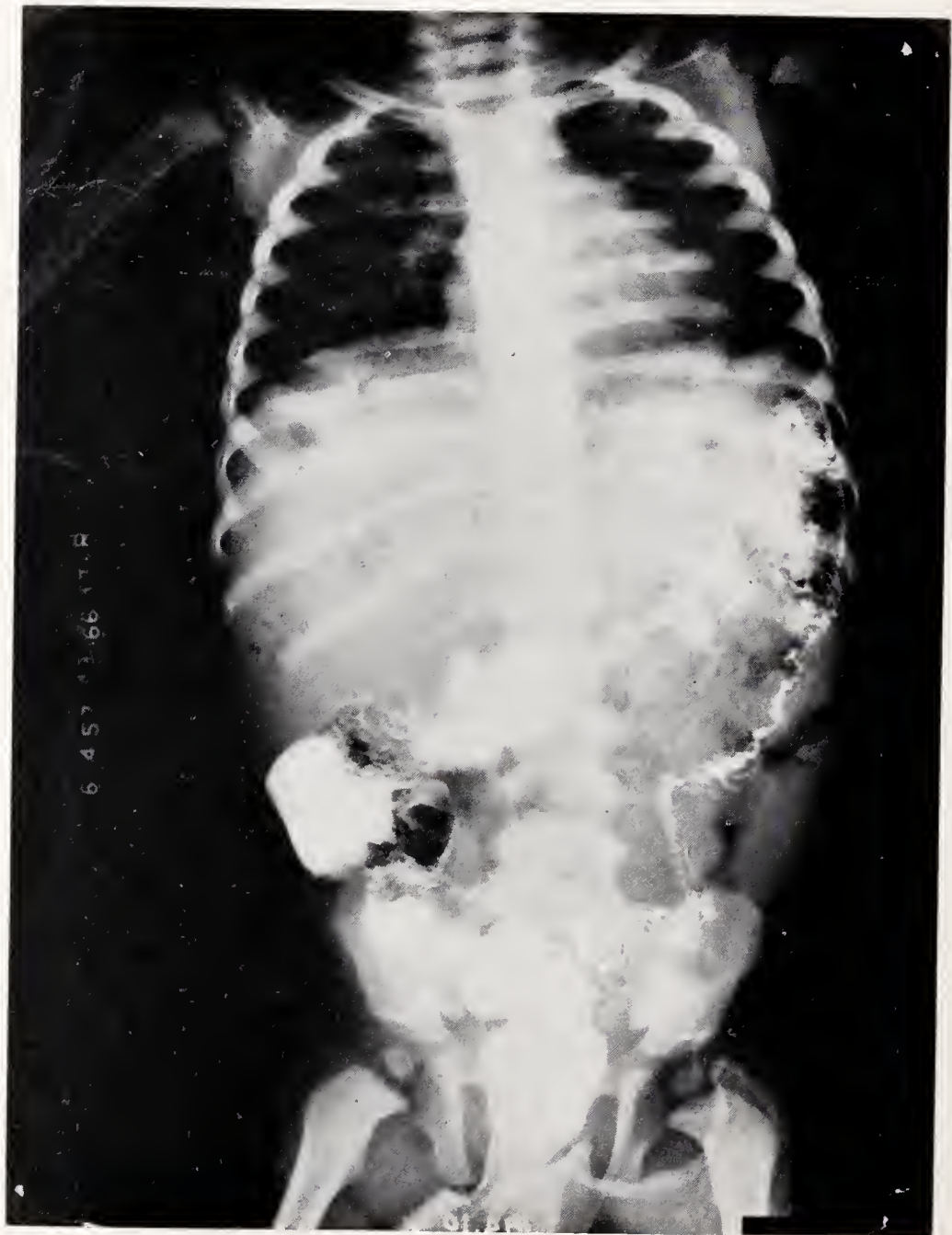


Prepared by J. S. Taylor, M.D., Professor of Medicine,
The Department of Medicine, University of Arkansas Medical Center

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 73





PUBLIC HEALTH AT A GLANCE

Physical Fitness Conferences for Elementary and Secondary Schools in Arkansas

A series of ten Physical Fitness Conferences were held throughout the state, sponsored by the College section of the Arkansas Chapter of the Association for Health, Physical Education and Recreation in cooperation with the Joint Health Committee composed of the State Department of Education, State Board of Health and the Arkansas Medical Society.

These conferences were held with the hope that they would aid the local schools in giving impetus to the impact of President Kennedy's Physical Fitness Program and bring about an improvement in the instructional program in the areas of Health Education and Physical Education in both the elementary and secondary schools.

It should be pointed out that the President's Physical Fitness program includes a comprehensive program of Health Education. As stated in the "Youth Physical Fitness" manual published by the President's Council on Youth Fitness: "Since it is impossible to achieve physical fitness without good health, our schools should continue to emphasize and improve school health programs." The school health education program should provide health knowledge based on scientific information in order to develop desirable health attitudes and behavior for promotion of proper physical fitness for all.

It is important to realize that physical fitness is part of total fitness. Other aspects include mental and emotional fitness, social fitness, spiritual fitness and health aspects of fitness.

The "Youth Physical Fitness" manual points out that a Health Appraisal should be made of every school child. The manual states, "It is desirable that every child have continuing supervision by his family physician and dentist, including periodic examinations and correction of any disabilities . . ."

In a letter sent to over 1,900 county medical societies, Leonard W. Larson, M.D., American

Medical Association president, asked physicians to support the nation-wide campaign of such examinations sponsored by the President's Council on Youth Fitness. He urged medical societies to cooperate with school authorities and others concerned in working out locally acceptable procedures for the examinations.

Dr. Larson said, "Physical Fitness must rest upon firm foundations of health. The health care of children and youth, including health examinations is the responsibility of the family but schools and other community agencies have a responsibility for the encouragement of such preventive services."

In 1960 Arkansas held a Governor's Conference on Youth Fitness in Little Rock. Interest was so great that it was felt a statewide program on fitness testing of our youth should be started. It was hoped that one of the desirable outcomes would be that the testing would be used to establish norms for Arkansas Students in physical education classes.

The sites of the Physical Fitness Conferences along with host schools and colleges are listed on the accompanying map with the area served. Each school in the state was encouraged to send one or more representatives including teachers, administrators, PTA Health Chairmen, Health Coordinators and school board members to the nearest clinic. There were 1,225 representatives from 284 Arkansas schools attending the conferences. Also early in the next school term it is planned to hold additional physical fitness conferences at Philander Smith College, Arkansas A.M.&N. College; Washington High School, El Dorado and Lincoln High School, Forrest City, if the desire to participate is shown by the adjoining county schools or other schools that wish to be hosts.

At each of the Conferences the following material was distributed to the individual schools:

1. A copy of the Presidential Message to the schools on the Physical Fitness of Youth.

2. The "Youth Physical Fitness" manual parts one and two prepared by the President's Council on Youth Fitness.
3. The A.A.H.P.E.R. "Youth Fitness Test Manual". (Cost—75¢)
4. "Physical Education, A Guide for Elementary Schools of Arkansas," 1961.
5. "Physical Education, A Guide for Secondary Schools of Arkansas," 1957. Second edition.
6. "Handbook for Health Education in Arkansas Schools."
7. "A Guide for Coordinating School Health Programs in Arkansas."

Purposes of the "Clinics"

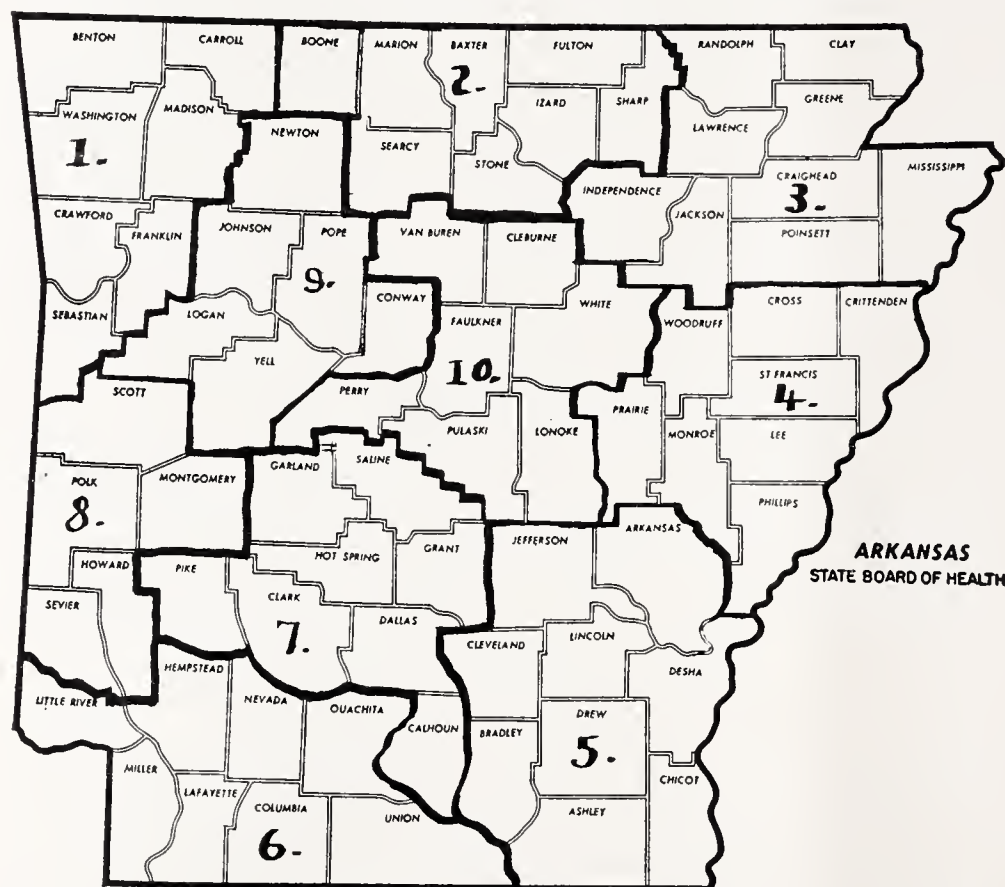
1. The major purpose of the "Clinics" was to demonstrate to the school and community leaders how to organize and administer physical fitness tests. The clinics demonstrate the battery tests for screening recommended by the Presi-

dent's Council on youth fitness which includes: 1. pull-ups, 2. sit-ups, and 3. squat thrust (Burpee) for both girls and boys which test for strength, flexibility and agility. The American Association for Health, Physical Education and Recreation in their "Youth Fitness Test Manual" list the following seven battery tests: 1. pull-ups, 2. sit-ups, 3. shuttle run, 4. standing broad jump, 5. 50 yd. dash, 6. softball throw for distance, and 7. 600 yd. run-walk which is also demonstrated.

2. The second purpose was to encourage schools to give the tests and send results of each student along with his age, height and weight to Dr. George Moore, University of Arkansas Department of Health, Physical Education and Recreation so that Arkansas Norms could be set up.

3. Schools are encouraged to place in their physical education curriculum at all grade levels, developmental activities as suggested in the Presidents' Fitness Manual.

Conferences on Physical Fitness in Arkansas 1962



- | | |
|--|--|
| 1. Fayetteville—University of Arkansas | 7. Arkadelphia—Henderson State Teachers College and Ouachita Baptist College |
| 2. Mountain Home—Mountain Home High School | 8. Mena—Mena High School |
| 3. Jonesboro—Arkansas State College | 9. Russellville—Arkansas Polytechnic College |
| 4. Forrest City—Sam Smith Junior High School | 10. Conway—Arkansas State Teachers College and Hendrix College |
| 5. Monticello—Arkansas A. & M. College | |
| 6. Magnolia—Southern State College | |

4. Communities and schools are encouraged to develop a strong comprehensive Health Education Program in grades 1 through 12.

A School Health Education Survey in conjunction with the Presidents' Physical Fitness Program was prepared early in January 1962 by the School Health Education Consultant, Division of Maternal and Child Health, Arkansas State Board of Health. The "School Health Education Survey" was sent to 418 School Administrators in the state.

The purposes of the survey were:

1. To encourage a comprehensive program of Health Education.
2. To encourage a self-evaluation of the local school's total health education program.
3. To stimulate new interest and new views on Physical Fitness.
4. To motivate new interest in Health Education.

5. To see how the Joint Health Committee of the Arkansas State Board of Health, the Arkansas Department of Education and the Arkansas Medical and Dental Societies can best serve the local school district.

An early count of the returns of this survey shows that 220 Administrators sent back their surveys expressing great interest and concern in improving their Health Education and Physical Fitness Programs. As final tabulations are still being made, the greatest concerns shown were problems of dental care, nutrition, communicable disease control, need for driver education and training, alcohol education and mental health.

In view of the great interest that was shown at the Physical Fitness Clinics and the findings of the School Health Education survey and the fine cooperation of all professional and community groups it appears that Arkansas is moving at full speed toward total physical fitness.



EDITORIAL

ULCERATIVE COLITIS

Alfred Kahn, Jr., M.D.

THE PROBLEM OF ULCERATIVE COLITIS has been brilliantly reviewed in a recent special issue of *Gastro-Enterology* (Vol. 40, part 2, p. 286, Feb. 1961). 12 articles on this subject written by different authors gives an insight into many facets of this disease.

The clinical aspects are discussed by Kirsner, who points out that the disease is more common in private hospitals than in charity institutions. Despite the fact the disease is not transmissible, a survey showed a 10% familial incidence. In 50% of the cases, the entire colon is involved. Surgery is required in 10-15% of the cases. The mortality rate varies from 5 to 20%.

Lumb discussed the pathology of ulcerative colitis. He divided the disease into three groups. The acute progressive lesions which include linear ulcer, ragged mucosal remnants, granular pseudopolyps, mixed pseudopolyps and adenomatous polyps. There is a subacute disease in which ulceration and healing occur simultaneously; the bowel wall is thickened and some contraction occurs. The chronic stage is characterized by a thin atrophic mucosa and fibrous replacement of the muscular layers. Lumb stresses the desirability of performing rectal biopsies in doubtful cases.

The motility of the colon in ulcerative colitis has been studied by Almy. He found typical normal I, II and III type waves in three of the cases. In two-thirds there was reduced wave activity with a so-called straight line tracing. Occasional individuals had increased phasic activity of a non propulsive type. In ulcerative colitis

cases one abnormally large wave was seen; this was propulsive. It is of interest that diarrhea correlated well with the straight line tracing. This tracing can be mimicked with acetylcholine.

Experimental colitis can be produced in a variety of ways, according to Kirsner, by: vitamin deficiencies, I-V injection of staphylococcal toxin, local injections of collagenase, oral administration of lysozyme, histamine injections, antibiotics, cholinergic drugs, etc. Some of these resemble ulcerative colitis slightly and others bear no resemblance. Allergies have not been proved to be pathogenetic in humans but in the rabbit a type of colitis can be produced by them that simulates ulcerative colitis.

Certain physiologic and biologic features of ulcerative colitis have been collected by Engel. 1. It is a disease of man only. 2. It may begin at any age and in either sex. 3. It may be familial. 4. It is recurrent. 5. It involves the lining of the bowel. 6. Patients with ulcerative colitis have certain common personality traits. 7. Attacks come on often with depression. 8. Remission often is associated with removal of cause of depression. 9. If the patient avoids a sense of hopelessness thru psychic mechanisms, colitis will not appear. 10. When a patient has a sense of hopelessness, ACTH is less effective. The author assumes, then, that only certain people are biologically capable of having colitis and that an attack of colitis is precipitated by certain psychic upsets.

Weinstein has studied the bacteriology of ulcerative colitis and states that so far the studies

of bacterial flora is entirely normal. No specific pathogen can be found.

The enteroviruses are inhabitants of the human gastro-intestinal canal. Some are pathogenic as the ECHO viruses, Coxsackie viruses and polio viruses. According to Syverton, none of the enteroviruses has been proved to be associated with ulcerative colitis despite the fact that some cause diarrhea.

Benditt's review of inflammation implicates mast cells as having an important bearing in inflammation by releasing histamine 5-Hydroxy-tryptamine and perhaps other similar substances. There is a report by Good and Condie concerning hypersensitivity but again there is no solid

bridge reported between this topic and ulcerative colitis. Even connective tissue chemistry has been studied for a clue to ulcerative colitis; this is of particular interest with regard to lysozyme, an enzyme which increases in the stool of patients with ulcerative colitis. Lastly, endotoxins have been studied in relation to this disease without success.

In summary, this dread, not uncommon disease, ulcerative colitis, although the subject of much study is not well understood yet. The reader is referred to the excellent symposium in Gastro-Enterology for detailed reports (February, 1961).

ANSWER — ELECTROCARDIOGRAM OF THE MONTH

RATE: 80 RHYTHM: A-V Nodal
PR: — sec. QRS: .06 sec. QT: .29 sec.

INTERPRETATION: Abnormal. Abnormal P waves following QRS. Low voltage all complexes extremity leads. Sagging RS-T depression I, II, left precordial leads, with low T waves. Absent R, V3, V4. Nodal rhythm. Possible residuals old anterior infarction. Digitalis effect.

COMMENT: This elderly patient was first seen because of an increase in congestive failure and the tracing recorded. He had no gastro-intestinal symptoms of digitalis toxicity but history revealed that he had been receiving digitalis medication with some increase in amount prior to the time the tracing was recorded. The tracing shows rather characteristic changes suggestive of digitalis effect with the nodal rhythm and sagging S-T depression being evident. In addition there is noted a loss of R in localized anterior chest leads V3, V4, suggesting previous anterior myocardial infarction. He later developed another myocardial infarction complicated by ventricular tachycardia. Autopsy confirmed old and recent infarctions.

ANSWER—What Is Your Diagnosis?

13-66-17 18 months old colored male

The patient had been passing round-worms by mouth and rectum for one week. There had been high fever and convulsions. Round-worms were visible in the vomitus and emerging from the rectum at time of admission.

DIAGNOSIS: Ascariasis involving bowel and liver.

X-RAY FEATURES: The tubular radiolucent filling defects within the barium in the colon are readily visible in the sigmoid and distal transverse colon and at the hepatic flexure. There is a skein-of-wool appearance of the bowel shadows and soft tissues outside the colon, presumably representing the worms within the small bowel. A very unusual feature is the collections of air within the liver representing liver abscesses secondary to the parasitic infestation.

MEDICINE IN THE



Dr. Samp Addresses Farmer-Rotary Banquet

Dr. Robert J. Samp from Madison advised some 370 farmers and their 65 Rotarian hosts recently to scrap "Grandmother's Medicine Chest" and use some common sense to get the most mileage out of the "only body you'll ever have." The event was the 38th Annual Farmer-Rotary Banquet at Grand Prairie War Memorial Auditorium in Stuttgart.

Dr. Samp attacked, among other things, self-diagnosis, high vitamin diets, morning-till-night pill taking, and traditions and old-wives' tales. He recommended as a miracle drug plain water. He said that water was not only good for the internal systems, but that it was also good hydrotherapy to take a tub bath in it at least once a week.

He also recommended taking advantage of rice and soybeans, mentioning that products of the soybean can be utilized for more healthful menus.

Joint Statement on Narcotic Addiction in the United States by American Medical Association and National Research Council of the National Academy of Sciences

The American Medical Association, and the National Research Council for many years have been concerned about and have studied the narcotic drug addiction problem. To assist in carrying out its studies, the American Medical Association collaborated with the American Bar Association in establishing a Joint Committee which made an Interim Report to the two organizations in 1958, and a Final Report in 1959.

It is concluded that there is widespread public and professional misunderstanding about this subject, specifically (1) that the Federal Bureau

of Narcotics believes drug addiction to be a crime; a belief that is contrary to the Federal law and its application by the Bureau, and (2) that the American Medical Association proposes the establishment of community ambulatory clinics for the withdrawal of narcotics from addicts or for the continuing maintenance of addicts on narcotics; a belief that is contrary to the official position of the American Medical Association.

Historically society has found it necessary to employ legal controls to prevent the spread of certain types of illness that constitute a hazard to the public health. Drug addiction is such a hazard.

The successful and humane withdrawal of individuals addicted to narcotics in the United States necessitates constant control, under conditions affording a drug-free environment, and always requires close medical supervision.

The successful treatment of narcotic addicts in the United States requires extensive post-withdrawal rehabilitation and other therapeutic services.

The maintenance of stable dosage levels in individuals addicted to narcotics is generally inadequate and medically unsound and ambulatory clinic plans for the withdrawal of narcotics from addicts are likewise generally inadequate and medically unsound.

As a result of these conclusions the American Medical Association and the National Research Council oppose on the basis of present knowledge such ambulatory treatment plans.

These two organizations support (1) after complete withdrawal, follow-up treatment for addicts, including that available at rehabilitation centers, (2) measures designed to permit the compulsory civil commitment of drug addicts for treatment in a drug-free environment, (3) the ad-

vancement of methods and measures towards rehabilitation of the addict under continuing civil commitment, (4) the development of research designed to gain new knowledge about the prevention of drug addiction and the treatment of addicted persons, and (5) the dissemination of factual information on narcotic addiction.

Group Okays Forty Hospitals in Arkansas

Four Arkansas hospitals have been added to the list of those accredited by the Joint Commission of Accreditation of Hospitals.

Forty hospitals of about 130 in the state are listed this year. The four additions are the Clark County Memorial Hospital at Arkadelphia, the Conway Memorial Hospital, the Magnolia City Hospital and the Randolph County Memorial Hospital at Pocahontas.

The Commission is sponsored and underwritten by the American Medical Association, the American College of Physicians, the American College of Surgeons, and the American Hospital Association.

The hospitals it accredits must have 25 beds and must volunteer for the survey of the hospital's services and facilities, including safe physical plant, careful supervision of patient care and adequate record-keeping, proper nursing care and proper administration. The fact that a hospital is not accredited by the Commission does not mean that it would not qualify if it applied for a survey.

The accreditations are generally for three years, but sometimes for only one.

Dr. Robins Condemns King-Anderson Act

In a talk to the Smackover, Arkansas Lions Club Dr. R. B. Robins, President of the Chamber of Commerce, charged that the Kennedy health program "is a step toward complete control of medical affairs in the nation."

The former Democratic national committee-man for Arkansas declared that the president's health program, known as the King-Anderson Bill, provides for the health care of the older citizens aged 65 and over, but that the ultimate plan was to provide socialized medicine, governmental health care for all the American people. Former Congressman, Aime Forland, now Chairman of a so-called National Council of Senior Citizens, had let the cat out of the box when he

said: "If we can only break through and get our foot inside the door, then we can expand the program after that."

Dr. Robins told of his observations of the British socialized medicine system on his visit to England in 1959 and noted that it had cost six times what they had estimated it would cost. He said: "Hundreds of young doctors are leaving England because they have been disillusioned because socialized medicine denies them the right to practice the quality of medicine they've been trained to practice."

He cautioned his audience to remember the words of Khrushchev quoted in the Congressional Record July 26, 1961, when he said: "We cannot expect Americans to jump from capitalism to communism, but we can assist their elected leaders in giving Americans small doses of socialism until they suddenly awake to find they have communism."

British Doctor Hits Socialized Medical Control

In a recent speech to the Pulaski County Medical Society, Dr. John Seale of Surrey, England, said that government control of all medical care is a "crashing mistake."

Dr. Seale said that in England, where nationalized medicine has been a fact since 1948, medicine is now "rationed" because facilities cannot keep pace with demands for medical care.

He said that certain ailments have priority over others, and persons not needing emergency care sometimes have to wait six months or more for an operation.

Even then, Seale said, you might get a world renowned specialist or you might land in the hands of a young surgeon with six months post-graduate experience.

He stated that if a pregnant woman waited past her third month of pregnancy, she could not book a bed in a hospital.

Seale mentioned that, although nationalized medicine has worked well in many ways, it has gradually run down the medical practice there.

15 Finish Course in Terminology

Fifteen women from Newport and Batesville have completed the first medical terminology course for medical assistants at Arkansas College.

The eight-week course, taught by Dr. Wayne Stanfield of Newport, was under the supervision

of Dr. Guy Berry of the Extension Service, University of Arkansas, in co-operation with the Arkansas Medical Society.

A second course, "Anatomy and Physiology," will be scheduled in the fall with the date to be announced later.

THINGS TO COME

CIBA Representative Available for Talks

Mr. Kermit R. Deitz of 6612 Evergreen Road, Little Rock, Arkansas, is available to present a 20-minute talk, "The Medical Revolution," to civic and professional groups. He is a professional service representative of CIBA Pharmaceutical Company.

Besides discussing the benefits of drugs and the savings in total medical care costs, "The Medical Revolution" predicts that cures for cancer and heart disease will be "only a fraction of the medical victories" reached by the year 2000.

Clinical Symposium to Be Held

The University of Texas Postgraduate School of Medicine announces a clinical symposium on "The Practical Treatment of Hypertension" scheduled for Thursday, Friday and Saturday, September 20, 21 and 22, 1962. The symposium will be held in the Auditorium of the University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, Texas.

The program will include a number of outstanding speakers who will discuss hypertension as follows: Theories and concepts regarding etiology, metabolic observations, hemodynamics, natural history, indications for treatment, various therapeutic agents and surgical procedures. Emphasis will be placed on the medical-surgical treatment of essential hypertension and curable forms of secondary hypertension. There will be no tuition fee.

For further information write: Office of the

Dean, The University of Texas Postgraduate School of Medicine, 102 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.



OBITUARY

Dr. George D. Thompson

Dr. George D. Thompson, 79, of Little Rock died at a Little Rock hospital on May 8, 1962.

Dr. Thompson was a member of the Pulaski Heights Baptist Church, the Pulaski County Medical Society, The Arkansas Medical Society, the American Medical Association, the Forrest Heights Business and Professional Association, the Pulaski Heights Lodge No. 673 F & AM and the Bendemeer Grotto. He was an honorary member of the Medical Staff of both St. Vincent's Infirmary and the Arkansas Baptist Hospital, and a member of the Emory University Alumni Association.

Dr. Thompson, a native of Georgia, received his degree from Emory University at Atlanta and practiced several years in Georgia before moving to Little Rock in 1915. For twenty-two of the last 52 years in which he has engaged in an active medical practice, Dr. Thompson has served the City of Little Rock as City Physician.

Funeral was held May 10 at Pulaski Heights Baptist Church with interment at Roselawn Cemetery in Little Rock.

Dr. G. A. Hughes

Dr. G. A. Hughes, aged 92, pioneer physician and longtime resident of Siloam Springs, died on April 13 in Siloam Springs after an extended illness.

Born in 1870 the son of John and Rachel Hughes, he graduated from Vanderbilt University in 1894 and began the practice of medicine at Gravette, Arkansas. He moved to Siloam Springs in 1918 and practiced there until his retirement approximately two years ago. He was a member of the First Christian Church.

He is survived by his wife, Madge; one son, Lewis Hughes; three daughters, Mrs. Lina Witt, Mrs. Lillian Scheller and Miss Margaret Louise Hughes; two brothers, Albert Hughes and Lester Hughes; one sister, Mrs. Mary Lewis, six grand-

children and seven great grandchildren.

Funeral service for Dr. Hughes was held April 15 at the First Christian Church in Siloam Springs. Interment was in Hillcrest Cemetery, Gravette.



PERSONAL AND NEWS ITEMS

Dr. T. D. Brown Speaks on Hypnosis

Dr. T. Duel Brown of Little Rock spoke on the "Uses of Hypnotism in Medicine and Surgery" at the recent general meeting of the Stuttgart Hospital Auxiliary.

Dr. Brown, a urologist, is serving as secretary to the Arkansas Society of Clinical Hypnosis and is chairman of the public relations committee of the American Society of Clinical Hypnosis.

Dr. Brown is past president of the Arkansas Medical Society, Arkansas Urological Society, Pulaski County Medical Society and Arkansas Society of Clinical Hypnosis.

He is diplomate of the American Board of Urology.

Dr. Knicker Addresses Association

Dr. W. Ted Knicker, Assistant Professor of Pediatrics at the University of Arkansas School of Medicine, spoke at the April 13 annual meeting of the Miller-Bowie Tuberculosis Association in Helena.

Dr. Knicker discussed research he is currently doing at the Medical Center in the field of tuberculosis, to which the Miller-Bowie Tuberculosis Association has made a special contribution of \$100.

Dr. Knicker has been a pediatric consultant at the MacRae Tuberculosis Sanatorium since 1960.

Medical Society Honors Newport Group

The eighth annual convention of the Arkansas State Medical Assistants Society was held in Hotel Lafayette in Little Rock on April 14-15.

Mrs. Katherine Spragins, president, presided and Mrs. Mildred Ruck, convention chairman, was in charge of arrangements.

The Pulaski County Medical Assistants Society was hostess group, and the theme of the meeting was "Progress Through Education and Ultimate Certification."

Dr. Cannon Speaks to Kiwanians

Dr. Robert Cannon, a psychologist at the Veterans Administration Hospital in North Little Rock recently spoke to the North Little Rock Kiwanis Club on the theory that nearly everyone has the same emotional needs and suffers the same frustration of not seeing them fulfilled.

Doctor Cannon stated that one way to approach the satisfaction of one's own needs is to try to satisfy the needs of others. In so doing, a person enhances his own prestige and makes himself a desirable associate, he said. Doctor Cannon called this social proficiency and said that the person who is not socially proficient is likely to be critical, supercilious, arrogant, ostentatious and selfish. This person antagonizes others by jeopardizing their security, he said.

Dr. Jones Speaks to Ashdown Rotary

Dr. Kenneth Jones, orthopedic surgeon from Little Rock, was guest speaker at the May 9 meeting of the Ashdown Rotary Club.

Dr. Jones discussed the proposed King-Anderson legislation and pointed out reasons

why the American Medical Association was opposed to the program.

Med Center Intern Gets Award

Dr. Harold Dean Stephens, an intern at the University of Arkansas Medical Center, has received a \$1,000 award from the American Academy of General Practice for a year of residency training in general practice at the Medical Center.

Dr. Stephens, who is a 1961 graduate of the University of Texas Southwestern Medical School, will begin his residency in July.

A number of the awards are made each year to family doctors-to-be under a grant from Mead Johnson Laboratories at Evansville, Indiana.

Dr. Grace Opens New Office

Dr. Jesse L. Grace held open house Sunday, April 8, at his new office on Maple Avenue in Mena.

Except for a two year tour in the army, Dr. Grace has been with the Rogers and Hefner Clinic since he and his family moved to Mena in 1949.

Med Center Gets Check for X-ray Unit

The Twentieth Century Club of Little Rock recently presented the University of Arkansas Medical Center with a \$1,300 check for the purchase of a special X-ray machine for the treatment of skin malignancies. The funds were raised in the Club's annual charity ball.

Dr. Johnston Presents Paper

Dr. Thomas G. Johnston, a Little Rock Allergy Specialist, presented a paper entitled "Comparative Studies in Penicillin Sensitivity" at the annual congress of the American College of Allergies April 4 at Minneapolis, Minnesota.

Two Jonesboro Doctors Move Offices

Dr. Bascom Raney has moved from Hughes Drive in Jonesboro to 403 East Matthews, the former offices of Dr. E. M. Cooper.

Dr. Cooper has moved his offices into the X-Ray Department of St. Bernard's Hospital.

Dr. Thorne Opens Offices

Dr. A. E. Thorne recently announced the opening of his offices for the practice of general medicine and surgery at 207 Hughes Drive, Jonesboro.

A native of Osceola, Dr. Thorne practiced medicine in Van Buren for seven and a half years.

Dr. Lee Builds Clinic in Stamps

A Lafayette County physician, Dr. W. J. Lee, is in the process of building a new clinic in Stamps. The clinic will be completely air conditioned and modern and will give Dr. Lee much needed room for his work.

Med School Receives Funds From Medical Association

A check for \$8,270.52 was received May 1 by the University of Arkansas School of Medicine from the American Medical Association Education and Research Foundation.

The money is part of \$1,303,161.10 contributed by the nation's doctors during 1961 to the country's medical schools through the Foundation. Deans of the individual schools may use the money at their discretion for special projects or expenses outside their budgets.

Since the Foundation was created in 1951, physicians have given more than eleven and one half million dollars to medical schools through it.

Batesville Clinic to Expand

The North Arkansas Clinic Hospital in Batesville is slated to undergo an expansion and modernization program that will add 40 per cent more space to their present facilities. The project, to cost an estimated \$175,000, is expected to get underway sometime this summer.

The first floor of the new two-story addition will include a physical therapy room, an expanded x-ray department, lounge, storage rooms and a doctor's office. The second floor of the addition will embrace six two-bed patient rooms, two one-bed rooms, recovery room, labor room, nursery, nurses station and hospital pharmacy across the hall, and various utility rooms and work areas.

Renovation of the first and second floors of the present building will include expansion and relocation of some of the facilities and the addition of a waiting room, chapel and nurses lounge.

Doctor's Day Observed Throughout Southwest

Throughout Arkansas and the Southwest March 30 was observed as annual Doctor's Day honoring doctors for their services to humanity.

The idea was originated by a Georgia physician's wife who suggested that a day be set aside to honor members of the medical profession, both living and dead, whose daily devotion to their duty of service to humanity minister to our health and welfare.

March 30 was chosen to commemorate the discovery of anesthetic to provide freedom from pain and suffering during surgery. On that day in 1842, Dr. Crawford W. Long, the famous Georgia physician, first used ether as an anesthetic in a surgical operation.

Dr. Harris to Practice in Dumas

Dr. Charles Russell Harris of Lewisville has joined Dr. Guy U. Robinson in the practice of medicine in Dumas. Dr. Harris, a member of the American Medical Association and the Arkansas Medical Society, has practiced in Lewisville for the past seven years.

Dr. McDaniel Speaks to Rehab Center Students

Dr. L. H. McDaniel of Tyronza, widely known physician, humanitarian, civic and church lay leader, addressed students at the Hot Springs Rehabilitation Center recently.

His talk, given at the monthly Student Council sponsored assembly program, was entitled "Helping One Another" and was largely inspirational, drawn from his own wide experiences in human welfare.

Doctor Saltzman Named to Advisory Group

Dr. Ben N. Saltzman of Mountain Home, Arkansas has been named by Governor Orval E. Faubus to membership on the Governor's Citizens' Advisory Committee on Mental Retardation.

Little Rock Physician Speaks to Bar Association

Dr. Kenneth G. Jones, a Little Rock Physician, told a luncheon of the Pulaski Bar Association in Little Rock that "security is, and always will be, an illusion." Dr. Jones, who has spoken publicly several times against a trend toward socialization, said in his address that we are confronted with an enigma.

Dr. Jones stated that, contrary to the philosophy of personal liberty and freedom personified by our Constitution and Bill of Rights permitting individual freedom of choice in personal life, there is a philosophy alien to our Constitution which has found frenetic support among the liberal politicians and their beneficiaries for the past thirty years.

He said that this latter philosophy denies individual freedom of choice regarding one's welfare and "compels him to provide for his and everyone else's in a manner prescribed by government bureaucrats who long ago sacrificed their freedom for an ephemeral security."

Regarding the King-Anderson medical assistance bill now pending in Congress and supported by President Kennedy, Dr. Jones had this to say:

"This is the same legislation which was rejected last year by Congress, but, true to basic trends of bureaucracy, it reappears under another label."

"As a medical assistance bill, it is patently a farce. As a political expedient to obtain votes this fall from the elderly segment of our society and to open the door for further gratuities, it may or may not be efficacious."

Dr. Jones also expressed the belief that America is rapidly approaching the state where citizens may be divided into three groups — the government employees, or controlling class; the private taxpayers, or acquiescing class, and the needy, deserving, pensioned or welfare class.

Dr. Rhine Marks 64th Anniversary as Country Doctor

Dr. T. E. Rhine, widely known country doctor of Thornton, Arkansas, celebrated his 64th Anniversary of medical practice on March 27, 1962.

Since hanging out his shingle in Locust Bayou

in 1898, the genial doctor has delivered more than 6,000 babies and has done all types of surgery under all conditions.

In 1949 Dr. Rhine was chosen the Arkansas Doctor-of-the-Year and was runner-up for the American Medical Association's Doctor-of-the-Year honor.

Dr. Rhine's wife is the former Miss Nanita Raines.

Open House Held at Ola Clinic

Open house for the public was held at the new Pennington-Luker Clinic at Ola, Arkansas on Sunday, April 29. The clinic contains the offices and examining rooms of Dr. J. O. Pennington and Dr. Jerome H. Luker.

Clarendon to Get New Clinic

Dr. E. Morgan Collins, presently head of a hospital on an Indian Reservation near Yuma, Arizona, will move to Clarendon this summer where he will build his own clinic. The city has been engaged in raising \$40,000 to build a clinic for two doctors. Since Dr. Collins, who says he prefers to live in a small town, will build his own clinic the money raised by the town will be refunded. This summer Dr. Collins will complete three years of service with the U. S. Public Health Service.

Dr. Kenneth Jones Addresses Rotarians

In an address to the Fordyce Rotary Club and guests Dr. Kenneth Jones, an orthopedic surgeon from Little Rock, said that it was time for all people to take more interest in their government as he pointed to the mounting public debt and special powers of our elected officials, especially in our Federal Government.

Using charts in conjunction with his address, Dr. Jones pointed out the freedoms being lost, the mounting public debt and the social security program as being unsound. He stated that "we have increased our national debt from 20 billion dollars to around 300 billion in a little more than a quarter of a century."

As to social security, he pointed out that the cost has increased 400 per cent since it was inaugurated in 1937 and our government plans to increase it by 745 per cent by 1968. "A person

now turning 21 years of age will pay in \$1.69 to get back \$1.00 in social security," Dr. Jones said.

Touching on inflation of the present, Dr. Jones said it is being caused by our government spending and not by the steel companies or labor.

Dr. Box to Run for County Coroner


Dr. Ivan H. Box announced that he would make the race for Coroner of Madison County on the Democratic ticket this summer. Dr. Box, who moved to Huntsville, Arkansas about three years ago, is associated with Dr. Austin Smith in the operation of the Madison County Hospital and the general practice of medicine.

New Clinic Will Be Near Hospital

Dr. Carl Arnold and Dr. David Ducker are planning to build a new clinic near the new Fulton County Hospital in Salem, Arkansas. The exact location has not yet been determined.

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1. Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice, ed. 6, Baltimore, The Williams & Wilkins Company, 1955, p. 578.

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BOOK REVIEWS

CLINICAL PATHOLOGY, Application and Interpretation, Third Edition, by Benjamin B. Wells, M.D., Ph.D., Assistant Chief Medical Director for Research and Education in Medicine, Veterans Administration. Former Professor of Medicine and Chairman of the Department of Medicine, Creighton University School of Medicine, Omaha, pp. 541, published by W. B. Saunders Company, Philadelphia and London, 1962.

This book is in its third edition. It is a very adequate textbook of clinical pathology. It is organized according to systems, such as cardio-vascular system, gastro-intestinal system, etc. and, in addition, there are separate sections on

surgery, obstetrics and laboratory procedures. The text is well organized. There are a moderate number of charts and illustrations. There are virtually no references in the text. The book is recommended as a textbook of clinical pathology for medical students, house staff and general physicians. It is not encyclopedic. AK

SHOCK Pathogenesis and Therapy, an International Symposium, Edited by K. D. Bock, Basle, pp. 387, published by Springer-Verlag, Berlin, Gottingen, Heidelberg, 1962.

This International Symposium on shock is a fascinating book. Shock is a condition with which all physicians have to deal. This book discusses different types of shock, including experimental shock. Of a special interest to the internist is a discussion of myocardial shock. Another chapter is on the nature of irreversible shock and this is of extreme importance in modern medicine. The relationship between angiotensin and aldosterone to shock is of great current interest and this is well discussed. This small book is of considerable interest to all physicians and is highly recommended. AK

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August, 1962

Vol. 59 No. 3

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rag *rag* (răg) *n.* **music.** **a** Rhythm characterized by more or less continuous syncopation in the melody. **b** Colloq. A type of music (**ragtime music**) characterized by a strongly accented melody superimposed upon a regularly accented accompaniment. **rag'weed** (-wed'), *n.* **a** Eng. The ragwort. **b** U. S. Any of several coarse herbs (genus *Ambrosia*) typifying a family (Ambrosiaceae, the ragweed family) having heads of flowers subtended by an involucre of bracts; esp. a very common weed (*A. elatior*), with deeply lobed or dissected leaves; and the **great**, or **giant, ragweed** (*A. trifida*), with trilobate leaves. The cockleburs (see **COCKLEBUR**) also belong to this family. **rag wort**, (-wört'), *n.* Any of several plants (genus *Senecio*) of the aster family, as the **golden ragwort** (*S. aureus*) of the United States, having an open corymb of yellow-rayed flowers. **ra'yah** (ră'yă), *n.* [F, fr. Turk. *ra'aya*, fr. Ar. *raya*, coll. sing. *ra'iyah*, flock, herd.] A non-Moslem subject of a road. See **ROAD RAID**, way.] **rad** (rad), *n.* [F, fr. *raid*, a foray; orig., a hostile invasion; hence, a sudden or force of any

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579-P to be sent to Arkansas Medical Society, 218 Kelley Building, Fort Smith, Arkansas. Published monthly under direction of the Council, Arkansas Medical Society, Vol. 59, No. 3. Subscriptions \$3.00 a year. Single copies 50 cents. Entered as a second class matter, May 1, 1955, at the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

THE DIFFERENTIAL DIAGNOSIS OF CRYOPROTEINS*

John M. Kalbfleisch, M.D.**

Robert M. Bird, M. D.

IN RECENT YEARS SEVERAL dissimilar disease states have been noted to be associated with the development of a cryoprotein. The prefix "cryo" designates a protein moiety that will precipitate in the cold, but will redissolve when warmed. Two types of cryoproteins have been reported. Cryoglobulins were first described in 1933 (1) and in 1955 cryofibrinogens were first recognized (2). Subsequent reports have established that both occur frequently and are the subject of recent reviews (3, 4, 5).

Due to frequent co-existence, it is clear that some relationship exists between the cryoproteins and the other abnormal proteins, i.e., dysproteinemias. Alterations in the physical properties of plasma proteins also offer an explanation for some of the hemorrhagic and thrombotic episodes observed in a variety of disease states. It is usually difficult to differentiate the abnormal proteins clinically because their manifestations may be so similar. The purpose of this report is to point out a few of the more important patho-physiological mechanisms associated with the development of altered plasma proteins, and to call attention to a few simple laboratory tests which differentiate these entities.

*Presented in part at the Regional Meeting of the American College of Physicians, Hot Springs, Arkansas, September 30, 1961. Supported in part by a Graduate Training Grant (2A-5107) from the National Institutes of Arthritis and Metabolic Diseases, National Institutes of Health, United States Public Health Service.

**From the Department of Medicine, University of Oklahoma Medical Center and the Medical Service, Veterans Administration Hospital, Oklahoma City, Oklahoma.

Types and Occurrence

Table I lists the different types of cryoproteins. The primary or idiopathic variety of cryoglobulinemia is relatively rare and there is no known underlying disease process. This disorder is most frequently seen in the 6th and 7th decades, but has been rarely noted in children. Far more common is the group of cryoglobulins secondary to some underlying disease process. Multiple myeloma is the disease most frequently associated with cryoglobulinemia. While less than 5 per cent of patients with myeloma have cryoglobulins, any patient with cryoglobulinemia should be carefully checked for this disease. Any disease which involves the reticuloendothelial system may be associated with cryoglobulinemia. The leukemias and lymphomas, the collagen diseases, chronic infections and nephrosis show the greatest incidence of cold precipitable proteins.

At times, cryoglobulins may occur simultaneously with other paraproteins such as macroglobulins. The same symptoms and signs may be manifested irrespective of the exact nature of the paraprotein. The term cryogelglobulin or macrocryogelglobulin merely implies that the protein gels instead of precipitating on cooling. This is likely the result of a slightly different alteration in molecular structure.

Likewise, cryofibrinogenemia has both idiopathic and secondary forms, again the idiopathic variety is quite rare. We have recently conducted a survey for cryoglobulins and cryofibrinogens on

TABLE 1
TYPES OF CRYOPROTEINS

1. *Cryoglobulinemias*
 - a. Primary or idiopathic.
 - b. Secondary:
 - Multiple myeloma, lymphoma, collagen diseases, chronic infections, etc.
 - c. Cryoglobulins and macrocryoglobulins:
 - Macroglobulinemia, myeloma, collagen diseases, etc.
2. *Cryofibrinogenemias*
 - a. Primary or idiopathic.
 - b. Secondary:
 - Metastatic carcinomata of prostate, kidney, lung, ovaries and stomach; acute rheumatic fever; thromboembolic disorders; etc.
 - c. Cryoglobulins:
 - Similar to b.

more than 670 hospitalized subjects with a variety of disorders (6). Metastatic carcinomas of many sites, notably carcinoma of the prostate with metastases, are most frequently complicated by cryofibrinogenemia. Thromboembolic disorders are next in frequency as the primary disease process. In this survey, cryofibrinogens were encountered in greater frequency and in larger quantities than were cryoglobulins.

Symptoms and Signs

Patients affected with cryoproteins commonly exhibit some manifestation of cold sensitivity such as Raynaud's phenomenon, urticaria, or cyanosis. (Table 2.) Although less than 5 per cent of patients manifesting Raynaud's phenomenon will

TABLE 2
SYMPTOMS AND SIGNS OF CRYOPROTEINS

1. Raynaud's phenomenon.
2. Urticaria, cyanosis, or acrocyanosis.
3. Ulceration, necrosis or gangrene of hands, feet, nose, lips, or ears.
4. Vascular occlusions of retinal, cerebral and systemic vessels generally resulting in deafness, pulmonary infarction and migratory thrombophlebitis.
5. Hemorrhagic disorders: Purpura, epistaxis, bleeding gums and mucous membranes, hematuria and melena.
6. Hemolytic anemia, pallor, numbness, dyspnea.
7. Hepatosplenomegaly and lymphadenopathy, edema, infections.

have cryoproteins, it is important that they be excluded. Ulceration, necrosis, or frank gangrene of the hands, feet, nose, lips, or ears has occurred in some cases. Dyspnea, lassitude, pallor, or ankle edema may be the earliest symptoms. These manifestations are more frequently observed during the winter months. They are more common with

the idiopathic cryopathies than with the secondary variety. Rather than cold sensitivity the presenting symptoms may be those of a hemorrhagic or thrombotic diathesis or both. Bleeding may be from the gums, mucous membranes or nose. There may be hematuria or melena, a hemolytic anemia or purpura. Vascular occlusions may involve the retinal or cerebral vessels as well as any systemic vessel and may result in strokes, deafness, myocardial or pulmonary infarctions or migratory thrombophlebitis. Concurrent infections frequently contribute to death in such circumstances.

Laboratory Findings

The principal laboratory aids are presented in Table 3. A mild to moderate anemia is often present, and may be associated with either leukocytosis or leukopenia, or thrombocytopenia. A moderate bone marrow plasmacytosis is seen in cryoglobulinemia and may be the source of the

TABLE 3
CRYOPROTEINS:
LABORATORY FINDINGS AND
DIAGNOSTIC STUDIES

1. Anemia, mild to severe, leukocytosis, thrombocytopenia.
2. Abnormal prothrombin, bleeding and clotting times.
3. Increased blood viscosity:
 - a. Rouleaux formation.
 - b. Increased ESR.
4. Anti-complementary serum, type and cross matching difficulties, cold agglutinins, cold hemolysins.
5. Bone marrow showing increased plasma cells.
6. Hyperglobulinemia or hyperfibrinogenemia showing homogenous peaks by electrophoresis.
7. When serum and plasma are cooled to 4° C. for 48 hours:
 - a. precipitate in both serum and plasma = cryoglobulin.
 - b. precipitate in plasma only = cryofibrinogen.
8. Sia water test, ultracentrifugation and immunoelectrophoresis for macroglobulins.
9. Tissue biopsies to aid in evaluation for collagen diseases, L. E. tests, latex fixation for rheumatoid arthritis.

altered protein, but no specific cell type proliferation has been identified in cryofibrinogenemia.

Hyperglobulinemia is usually present and accounts for the increased blood viscosity with rouleaux formation and increased sedimentation rate. The sedimentation rate is quite rapid at room temperature, but in the cold is very slow because of the precipitation of the cryoprotein. The effect varies with the amount of cryoprotein present. If the concentration of cryoprotein is very high, it may precipitate at room temperature and it is sometimes necessary to use a warm syringe to draw blood to prevent instantaneous

clotting. Occasionally, the diagnosis may be suspected when there are anti-complementary serological tests or cross-matching difficulties in the blood bank. Cold agglutinins are sometimes present. The globulins produced are incomplete as evidenced by the patient's poor immunological response which predisposes them to frequent infections.

A hemorrhagic diathesis may develop and it can be reflected by a variety of abnormal coagulation tests. Complexing or precipitation of several coagulation factors such as prothrombin, factors V and VII with the cryoprotein has been observed *in vitro* and is thought to occur *in vivo*. This may also occur with other abnormal proteins such as the macroglobulins. Thus the paradoxical situation of thromboses occurring simultaneously with hemorrhage may develop. Here a relative deficiency of necessary clotting factors develops as a result of their removal from the circulation by their complexing or precipitation with the cryoprotein. Others have attributed this phenomenon to the coating of platelets with the abnormal protein, but the exact mechanism remains unclear.

Diagnostic Studies

The initial diagnosis or exclusion of cryoproteins is relatively easy. Sera and plasmas are stored at 4°C. and observed at 24 and 48 hours, for a precipitate or gel formation. Figure 1 illustrates an actual cryoprecipitate in tube 1 appearing as a dense white precipitate which clears on warming as shown in tube 2. Freezing should be avoided to prevent precipitation of denatured proteins. Trace amounts of both cryoglobulin and cryofibrinogen are quite common and are not felt to be significant. It is generally accepted that over 1 gram per cent of cryoglobulin and over 100 milligrams per cent of cryofibrinogen are necessary to be of clinical significance. The examination of both serum and plasma is emphasized because if serum alone is studied a cryofibrinogen may be overlooked. If plasma alone is used, the precipitate may be either a cryoglobulin or cryofibrinogen and further tests are needed.

Gross quantitation can be performed by measuring the amount of centrifuged cryoprecipitate in a Wintrobe hematocrit tube or a calibrated test tube. The results are expressed as per cent of cryoprecipitate. Further characterization of the cryoproteins involves methods which are not readily available and are not essential for the initial diagnosis. These procedures include sep-



Figure 1. The appearance of a cryoprecipitate in refrigerated whole plasma in tube 1 contrasted with the warmed, clear plasma in tube 2.

aration and washing of the cryoprecipitate, electrophoresis, ultracentrifugation, immunoelectrophoresis, relative viscosity and coagulation studies of the plasma components. The electrophoretic-pattern analyses of whole plasma and the cryoprecipitate of a patient with cryofibrinogenemia are shown in Figure 2. The fresh whole plasma is shown as Pattern A. Fibrinogen migrates at the phi position intermediate between beta and gamma globulin. The cryoprecipitate when separated after cooling to 4°C., washed and redissolved in warm, normal saline solution, is shown as Pattern B.

When cryoproteins are suspected, but not found, other paraproteins should be considered. An easy screening procedure is the Sia water test which is performed quite simply by adding a few drops of serum or plasma to a test tube of distilled water. A cloudy-white precipitation is a positive test and is good presumptive evidence for a macro-

Treatment

In regard to therapy of any of the cryoproteins, many agents and procedures have been tried unsuccessfully. The patient must avoid exposure to cold. When these are secondary disorders, treatment must be aimed at the underlying disease. Plasmapheresis has resulted in temporary symptomatic improvement and a decrease in amount of cryoglobulin. Corticosteroids, alkylating agents and anticoagulants have had variable results. Recently, mercaptanes and some amino acids such as penicillamine or cysteine which break down disulfid linkages have shown some promise in the management of the cryopathies. More definitive therapy must await better biochemical elucidation of these proteins.

Summary

Cryoproteins represent a group of reversibly cold precipitable proteins closely related to other paraproteins. The possibility of a cryoprotein should be kept in mind in any patient exhibiting cold sensitivity or having an unexplained hemorrhagic or thrombotic diathesis. Cryoglobulinemia and cryofibrinogenemia can be diagnosed or excluded by simple laboratory procedures. Treatment is most effective when directed to the underlying disease producing the abnormal plasma protein.

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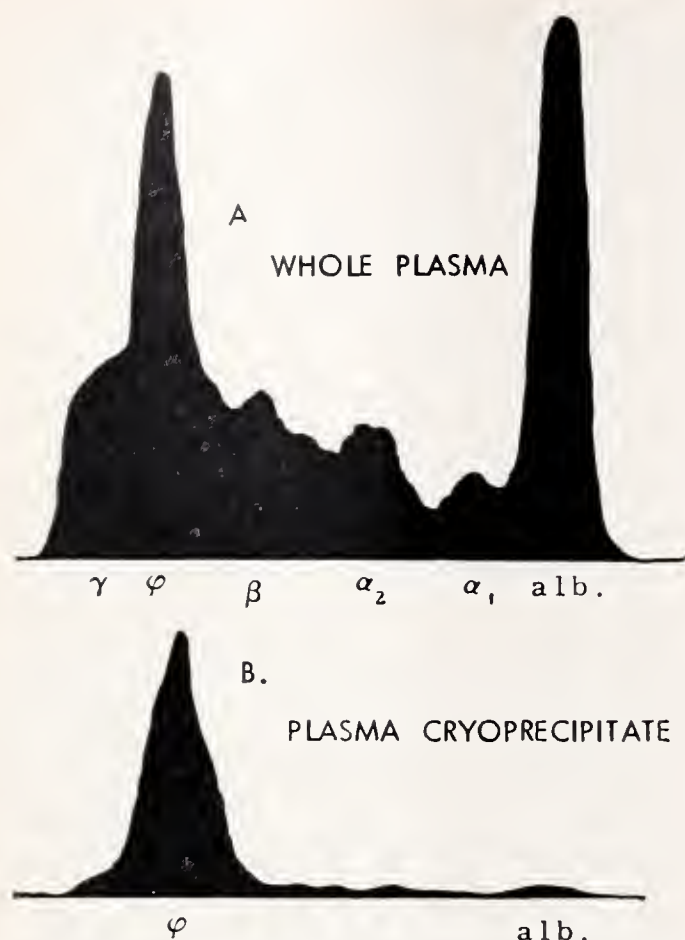


Figure 2. The electrophoretic-pattern analyses of whole plasma and a warm saline solution of plasma cryoprecipitate from a patient with cryofibrinogenemia.

globulin even though both false-positive and false-negative results do occur. Ultracentrifugation or immuno-electrophoresis are the only absolute methods currently in use to establish the presence of a macroglobulin. These should be done when one has a positive Sia water test or other evidence suggestive of a macroglobulin. If these tests are all negative but on electrophoresis there is a homogenous globulin peak, the most likely explanation is a multiple myeloma protein. Cold agglutinins and cold hemolysins should also be sought since their clinical manifestations resemble the cryoproteins. Cold intolerance is frequently one of the earliest symptoms of the collagen diseases and these entities have to be excluded. Finally, idiopathic Raynaud's disease, ergotism, heavy metal intoxication and idiopathic cold allergy must be kept in mind in any patient presenting with cold sensitivity.

DRUG ALLERGY

Thomas G. Johnston, M.D.*

Address given February 27, 1962, at the Tulsa Academy of General Practice.

DRUG ALLERGY SHOULD be of importance to everyone because of the severity and frequency of the reactions. The people of the United States are "medicine takers" as exemplified by the fact that 18,000,000 pounds of aspirin are consumed yearly. For example, one firm produces enough aspirin that if the tablets were placed single file they would reach to the moon and back. There are 300 tons of barbiturates used yearly which represents 8,000,000 daily doses. In addition, there are 500 tons of penicillin used yearly.

We define allergy as a specific altered capacity to react.

The most frequent offenders, in our experience, are penicillin and aspirin as well as phenolphthalein, the latter contained in more than 100 proprietary laxatives, such as Ex-Lax, bils salts, etc.

Table 1 and 2 demonstrates symptoms of drug allergy with examples.

One must be careful in confusing drug allergy with drug intolerance. *Drug intolerance* is a quantitative deviation such as will be seen with ringing in the ears from a small amount of quinine. Obviously if you give enough quinine to everyone they will be ringing in the ears.

Another thing usually confused with drug allergy is that of *pharmacological action*. An ex-

ample of this would be erythema after nicotinic acid or tremors after epinephrine. *Idiosyncrasy* is trouble from early use of medications such as a rash from the first dose of Equanil.

TABLE II

Symptoms of Drug Allergy	Examples
9. Contact dermatitis	"Caines", sulfas, and penicillin
10. Hemolytic anemia	Fava bean
11. Agranulocytosis	Thiouracil, gold, sulfonamides
12. Thrombocytopenic purpura	Quinine, gold, sulfonamides
13. Fixed drug eruptions	Phenolphthalein and quinine
14. Periarteritis nodosa	Sulfonamides, iodides, dilantin, and thiouracil
15. Many others such as: Peripheral neuritis, hemorrhagic nephritis, and hemorrhagic encephalitis	

The *incidence* of drug allergy is extremely common with the rate varying anywhere from one-thousandth of one percent to 90% in cases of large amounts of horse serum. The *route of administration* determines the index. For example, penicillin applied topically causes a higher instance of trouble than penicillin intramuscularly. Penicillin intramuscularly causes more trouble than given by mouth.

As to route of administration, Table 3 shows routes of contact with drugs: 1) Ingestion 2) Injection 3) Inhalation 4) Topical application

TABLE I

Symptoms of Drug Allergy	Examples
1. Asthma and allergic rhinitis	Aspirin and sulfonamides
2. Urticaria and angioedema	Penicillin and aspirin
3. Serum sickness	Antitoxin and penicillin
4. Anaphylactic reaction	Serum, aspirin, and thiamine
5. Drug fever	Sulfonamides and thiouracil
6. Drug rash	Sulfonamides and penicillin
7. Hepatitis and parenchymal necrosis of liver	Arsenicals and sulfonamides
8. Exfoliative dermatitis	Arsenicals and penicillin

*From the Cazort-Johnston Allergy Clinic, Little Rock, Ark.

TABLE III

Routes of Contact with Drugs
1) Ingestion
2) Injection
3) Inhalation
4) Topical application
5) Mothers' milk
6) Absorption from mucous membranes of bladder, vagina, conjunctiva, etc.

5) Mother's milk 6) Absorption from the mucous membrane of the bladder, vagina, conjunctiva, etc.

The *severity* of drug allergy varies from a transitory skin eruption to a fatal reaction. Table 4 shows examples of drugs which have caused fatal reactions, they are: Aspirin, phenothiazines, mercurials, "caines", iodides, thiamine, mesan-

TABLE IV

<i>Some Drugs That Have Caused Fatal Reactions</i>	
1. Aspirin	8. Tridione
2. Phenothiazine	9. Penicillin
3. Mercurials	10. Sulfonamides
4. "Caines"	11. Streptomycin
5. Iodides	12. Arsenicals
6. Thiamine	13. Aminophylline
7. Mesantoin	14. Antisera (Horse Serum)

toin, tridione, penicillin, sulfonamides, streptomycin, arsenicals, aminophylline, and Antisera (horse serum).

As to specificity one may be allergic to the whole or to the fractions. For example, one may be allergic to trivalent arsenic which is arsphenamine and not to tryparasamide which is a pentavalent. On the other hand one may be allergic to the dextrorotatory isomers of quinine and not to the levorotatory isomers of quinine. As to the sulfonamides one may be allergic to one and not to another, or to all.

There is an interesting chemical relationship involving para-aminobenzoic acid, sulfanilamide and procaine, in that the para-aminobenzoic acid structure is contained in both sulfanilamide and procaine, consequently, if one was allergic to one, one should suspect the possibility of being allergic to all three.

The *duration of drug sensitization* lasts from minutes to years. We know aspirin in some cases lasts a lifetime. Robins had a case of arsphenamine allergy lasting seventeen years.

Following a typical serum sickness reaction from penicillin three months after this occurs 30% of the people can take it without trouble. Nine months after a serum sickness reaction 90% can take it without trouble.

As to the *mechanism* the protein drugs we feel are an antigenantibody reaction as liver and insulin are complex protein molecules and we frequently get positive skin tests. The crystalloid drugs or the drugs of simple chemical compounds,

such as aspirin are unknown but probably act as a haptene.

As to *diagnosis*, the *history* is most important here. It is not enough to say "do you take drugs" because people, for example, don't consider aspirin a drug. But ask them what they take for a headache, what they take for cramps, what they take for indigestion, what they take for stomachache, if they take any vitamins, if they use a laxative, what they take for a cold, ask them about chewing gum, ask them about toothpaste, etc.

Another means of diagnosis is the *occurrence of symptoms typical of allergy*. For example, if a person takes an aspirin and has asthma, that is quite suggestive of allergy. Third, *skin tests* are only helpful in certain cases and if the skin test is positive with negative controls. This is particularly valuable in contact dermatitis where we use the patch test and the scratch test in preventing deaths from penicillin due to anaphylactic reactions. We believe some positive skin tests will tell us some helpful information.

Trial administration is usually too dangerous for use.

As to *prophylaxis* (Table 5): 1) Never give a common sensitizer unless the indication is definite and specific. 2) Be careful in giving drugs to peo-

TABLE V

<i>Prophylaxis</i>
1) Never give a common sensitizer unless the indication is definite and specific.
2) Be careful in giving drugs to people who can't tolerate other drugs.
3) The larger the dose of the drug (horse serum) the greater the likelihood of an allergic reaction.
4) If a patient says he is sensitive take him at his word (except can't take acetylsalicylic acid, but can take Anacin).
5) Certain drugs should never be used: ivy oil injections, "sulfa" drugs, topical "caines" and antihistamines to an inflamed surface.
6) "It might help but it won't hurt" is a bad attitude.
7) Give drugs orally rather than by injection.

ple who can't tolerate other drugs. 3) The larger the dose of the drug (for example, horse serum) the greater the likelihood of an allergic reaction. 4) If a patient says he is sensitive take him at his word (for instance, except can't take aspirin, but can take Anacin.) 5) Certain drugs should never be used: Ivy oil injections, "sulfa" drugs, topical "caines" and antihistamines to an inflamed surface. 6) "It might help but it won't hurt" is a

bad attitude. 7) Give drugs orally rather than by injection.

As to treatment, we would like to break the treatment down to emergency treatment and general treatment. Under *emergency treatment* (Table 6): 1) Tourniquet above the injection site when possible. 2) Epinephrine-----aqueous 1:1,000, intravenously and intramuscularly. 3) Hydrocortisone phosphate 100 milligrams intra-

TABLE VI

Emergency Treatment

- 1) Tourniquet above injection site when possible.
- 2) Epinephrine . . . aqueous 1:1,000, intravenously and intramuscularly.
- 3) Hydrocortisone Phosphate 100 milligrams intravenously.
- 4) Oxygen, artificial respiration, and suction when needed.
- 5) Keep airway open (remove dentures and pull tongue forward).
- 6) Levophed or Aramine.

venously. 4) Oxygen, artificial respiration, and suction when needed. 5) Keep airway open (remove dentures and pull tongue forward). 6) Levophed or Aramine in case of shock which seems to be irreversible.

As to *general treatment* (Table 7): 1) Discontinue all medications (unless necessary to save life) and tourniquet when possible. 2) Epine-

TABLE VII

General Treatment

- 1) Discontinue all medications (unless necessary to save life) and tourniquet when possible.
- 2) Epinephrine (Adrenalin) aqueous 1:1,000.
- 3) Hydrocortisone Phosphate, 100 milligrams intravenously and Dexamethasone (Decadron) Phosphate intramuscularly.
- 4) Oral steroids.
- 5) ACTH.
- 6) Antihistamines.
- 7) Force fluids, saline laxative and enema.
- 8) Cool baths.
- 9) Antipruritic lotions (menthol, phenol, and tronothane).

phrine (Adrenalin) aqueous 1:1,000. 3) Hydrocortisone Phosphate, 100 milligrams intravenously and Dexamethasone (Decadron) Phosphate intramuscularly. 4) Oral steroids, (Triamcinolone). 5) ACTH-Gel. 6) Antihistamines. 7) Force fluids, saline, laxative and enema. 8) Cool baths. 9) Antipruritic lotions (menthol, phenol, and tronothane). 10) Penicillinase in case of penicillin allergy.

By way of summary we feel that drug allergy is one of the most important subjects confronting the physician today and one should be informed as well as possible as to how to detect a drug allergy and what to do about it.

Public Health Service
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
and
Office of Civil Defense
DEPARTMENT OF DEFENSE
Washington 25, D. C.*

CONSOLIDATION OF GROUP REPORTS
MEDICAL SELF-HELP TRAINING WORKSHOPS

Held at

BROOKLYN, N. Y., October 16-19, 1961; ALAMEDA, CALIF., November 19-22, 1961;
BATTLE CREEK, MICH., December 4-7, 1961

General

This resume is a collation of recommendations which reflects the majority opinion of the designated representatives of the State Departments of Civil Defense, the State Departments of Health, the State Departments of Public Instruction, and the State Medical Societies who participated in the three regional Medical Self-Help Training Workshops held at Brooklyn, N. Y.; Alameda, Calif.; and Battle Creek, Mich.

The recommendations of the representatives of the 50 States as presented in this report clearly indicate the basis for the State and local administrative plans that are being developed for the implementation of the Medical Self-Help Training Programs.

Group Problem I

Program Development at the State Level

I. What are the functions at the State level to achieve the aims of the program?

The primary functions at the State level were classified within two main areas—planning and implementation. Adequate planning should be carried out by a duly appointed steering committee of representatives of the State Department of Civil Defense, State Department of Health, State Department of Public Instruction, and State Medical Society. This group will be concerned with the establishment of the administrative and organizational Medical Self-Help Training program plan including, but not limited to, the following:

1. Establishing realistic objectives.

2. Establishing policies and directives.
3. Designation of administrative and organizational responsibilities and channels of communication.
4. Program coordination and supervision.
5. Communication with the national level.
6. Formulation of advisory groups.
7. Provision of instructional material.
8. Establishing instructor standards and evaluation.
9. Identification and utilization of resources.
10. Promotional and informational activities.
11. Continuous program evaluation, with recommendations for revision and modification.
12. Compilation and consolidation of statistical data and program reports.

II. Delineate the operational mechanism for administration of the program at the State level.

Under the policy direction of the State Department of Civil Defense, the State Department of Health (who by law or designation is the health and medical staff arm of civil defense) should have the primary responsibility to furnish the operational guidance, program direction, coordination, and supervision for the implementation of the program in accordance with the Medical Self-Help Training policies and directives as established by the steering committee.

III. What are the resources available in the State for use in achieving the goal?

Many specific individuals, facilities, materials, groups, and organizations were listed as resources. The principal categories were:

*Submitted by Dr. M. D. McClain, chairman of Society Civil Defense Committee.

1. Professional.
2. Civic, social, and other volunteer agencies.
3. Fraternal groups.
4. Religious groups.
5. Industrial and labor groups.
6. Governmental agencies (Federal, State, and local).
7. Educational (students, teachers, PTA's, etc.).
8. Agricultural.
9. Military (active and reserve).

IV. How can these resources be used for most effective accomplishment?

In order to create initial and continuous interest and support within the resource categories delineated in III, the steering committee must evaluate the possible contributions and utilization of these resources, and then solicit their active and on-going participation in the program implementation.

In accordance with their structures, composition, and capabilities, the resources should be delegated responsibilities in the following areas:

1. Advisory.
2. Recruitment.
3. Instruction.
4. Promotion, information and public affairs.
5. Evaluation.
6. Administration.
7. Coordination.

V. What advisory groups will be needed for the program?

VI. What should their relationship be to the administrative mechanism?

NOTE: *Questions V and VI were combined in this summary because of the overlap of the recommendations presented in the group reports.*

There should be formed one or more advisory groups composed of representatives of all interested and involved resource categories. This advisory group(s) should be separate and distinct from the steering committee. The group(s) must continually be made fully cognizant of the total program. The function of the group(s) would be to furnish only advice and council on the overall program, course content, teaching techniques, and the methods and procedures of program operation. However, the advantages that can be gained from the advice and endorsements of the advisory groups should not be underestimated.

VII. How should the promotional and informational activities be carried out?

A single State level public information officer should be responsible for the centralized control, development, distribution, and coordination of all public promotional and informational activities to insure the release of complete and valid information, and uniformity of content. All available types of media could and should be used.

Regardless of the mechanics evolved, it was unanimously agreed that no promotional or informational program, either national, State or local, should create a public demand beyond the capability of current supplies and manpower to meet the demand. Not to provide service when requested would be extremely detrimental to the program.

VIII. How should the leadership be determined for development of the local training structure:

The steering committee would work vertically downward to their local level counterparts and other interested component groups to initiate the local organization. The local structure should parallel and be patterned after the State organization and structure. Under policies and directives as established by the local Medical Self-Help Training steering committee and with the administrative support of the local civil defense agency, the local health and medical groups would implement the program.

IX. Projection of the States program development for fiscal years 1962, 1963, and 1964.

- A. The magnitude of the total program dictates a well planned and calculated start. Indeed, the initial scarcity of training kits seemed to aid this thinking, and necessitates a well controlled and implemented pilot program that will afford the States the opportunity to evaluate their individual administrative and organizational processes, as well as course content and techniques, recommending changes that appear desirable.
- B. Fiscal year projection, based on the assumption that adequate numbers of kits and other necessities will be available.
 1. Fiscal year 1962
 - a. Complete organization and administrative planning.
 - b. Conduct State and local level workshops.

- c. Start a pilot training program to develop a corps of qualified instructors.
 - d. To the extent the supply of training kits permits, initiate training programs with special groups such as health, civil defense, education, medical, welfare, and other interested groups.
 - e. Evaluate the program and its progress.
2. Fiscal year 1963
- a. Set a goal for the number and types of desired trainees, and obtain sufficient kits to achieve this.
 - b. Expand the basis for instruction to the school systems, additional selected groups, and other interested community organizations.
- NOTE: It was pointed out that utilization of the school system will gradually insure total instructional coverage and eliminate the need for "crash" type programs.
- c. Continuously evaluate the program.
3. Fiscal year 1964
- a. Extend the course to all community organizations and groups within the State, utilizing instructors selected from previous course participants.
 - b. Investigate the need and advisability of refresher training courses.
 - c. Continue program evaluation.
 - d. Compile statistical data to determine the extent of training coverage.

Group Problem II

Development of Local Training Structure

- I. What are the program functions to be planned for at the local level?
 - A. To the degree applicable a local steering committee patterned after that of the State, should be formed to assist the responsible local agency in the development of an operational program.
 - B. The responsibilities of this committee should include:
 1. Coordination and liaison with State committees.
 2. Establishment of policies and directives.

3. Establishment of community training objectives.
4. Identification of resources.
5. Supervision and coordination of the program.
6. Formation of advisory groups.
7. Recruitment of instructors.
8. Provision of facilities.
9. Reception and distribution of kits.
10. Publicity and information.
11. Evaluation of the program.

II. What are the resources available at the local level for use in achieving the goal?

Resources at this level would be essentially identical to State resources—namely:

1. Governmental agencies.
2. Civil and social organizations.
3. Educational groups.
4. Fraternal groups.
5. Religious groups.
6. Industrial and labor groups.
7. Professional and allied groups.
8. Other indigenous groups.

III. What are the specific program roles of the various resources?

Specific roles as related to categorical resources are as follows:

- A. Civil defense personnel, health departments, medical societies, and educational systems have coordination, evaluation, administration, advisory, promotional, leadership, guidance, instructional and recruitment functions; dependent on the local organizational structure for program implementation.
- B. Volunteer health organizations, allied health and medical societies, individual physicians, allied health workers, and local governmental agencies have instructional, recruitment, promotional, and facility provision functions.
- C. Individual citizens have both promotional and recruitment functions.

IV. What should the operational plan include to activate the local training program?

The local plan should include provisions for:

1. The formation of advisory groups.
2. Promotion, public affairs, and information.
3. Training workshops.
4. Selection, recruitment, and training of instructors.

5. Effective and coordinated scheduling.
6. Distribution and accountability of kits.
7. Administration of individual courses.
8. Expansion of the program.

V. How can organized groups such as industries, schools, religious groups, and governmental groups be brought actively into the local program?

These resource groups will more likely participate in the program if:

1. Key members of these groups are actively utilized in the organized structure of the plan.
2. They are represented on advisory groups within the plan.
3. They are included in workshops.
4. They are utilized as instructors.
5. They are considered for inclusion in the initial training course sessions.

VI. How should the promotional and informational activities be carried out at the local level?

For the broadest and most effective content and

coverage, promotional and informational activities should utilize all media and resources available at State and local levels. All activity should be coordinated through the central public information officer for the Self-Help Program.

VII. What are the criteria to be used in guiding the selection of instructors at the local level?

- A. The caliber of instructors and the effectiveness of course presentation will have a direct bearing on the ultimate success of the program.
- B. Designation of instructors should be guided by:
 1. INTEREST.
 2. Enthusiasm.
 3. Ability.
 4. Stability.
 5. Dependability.
 6. Prior completion of course.
 7. Group status.
 8. Availability.

December 20, 1961



CARE OF THE OPEN FRACTURE

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Definition

An open fracture is one in which the fracture site communicates with the exterior of the body. This type of fracture may be compounded from within or without and is very likely to be contaminated by microorganisms, particularly if compounded from without. Thus open fractures differ from closed fractures in that they are microbiologically contaminated and present the possibility of frank infection.

(A) General Principles

1. All open wounds with fractures are surgical emergencies.
2. One should not delay definitive treatment; every minute, every hour that is lost predisposes the patient to serious infection. The golden period of treatment is usually the first six hours, so one should not procrastinate.
3. Treatment consists of the following:

(a) Preparation of the Field

The patient is taken to surgery as quickly as possible after first making quite sure that no shock or impaired airway exists. X-Rays are taken prior to surgery. A CBC and differential and urinalysis are routine before surgery. Once in surgery, using strict aseptic technique, the operative field is prepared. The limb is immobilized without apply-

ing traction; the wound is covered with sterile gauze pads. Next one should carefully shave the skin and wash the limb with dilute Phisohex solution. Do not use strong antiseptics that will chemically irritate the skin. After preparation of the operative site, one should change gloves and gown.

(b) Debridement of the Wound

Thoroughly cleanse the wound itself with the dilute Phisohex solution. Continuously irrigate the wound with the warm sterile Phisohex or normal saline solution. One may use 10 liters of normal saline or dilute Phisohex solution if indicated. Now block off the wound with sterile towels, and excise a thin margin of skin around the wound. It may be necessary to enlarge the wound in its long axis. Then layer by layer excise by means of sharp dissection all devitalized and frayed soft tissue down to healthy tissue. Be careful not to excise healthy skin and soft tissue. Remove all small free fragments of bone and continue to irrigate the wound frequently.

(c) Closure of the Wound

When the wound has not been severely contaminated and has been debrided within six to eight hours, it is probably safe to close the wound primarily. In a clean wound one may elect to do primary repairs of simple lacerated nerves and tendons. However, in general, it is probably wiser to merely identify the injuries, tag them, and fore-

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go primary repair. The fracture is then reduced. In a relatively clean open fracture, internal fixation is permissible if needed. However, in a grossly contaminated open fracture it is safer to postpone this for a later time. The wound when relatively clean may be closed, layer by layer, utilizing cat gut sutures as fine as possible, compatible with the maintenance of closure. Approximate the layers loosely for approximation without strangulation of the tissue is the goal. Interrupted wire sutures are preferred for skin closure if a cast is to be applied. If the state of contamination is gross it is better not to close the wound but to pack it open loosely with either fine mesh dry gauze, sterile white vaseline gauze or Furacin gauze. If no infection develops then in seven days, the wound may be closed utilizing interrupted cat gut sutures for the subcutaneous tissue and fascia and interrupted wire sutures for the skin, after first trimming the margins of the fat layer.

(d) Immobilization of the Fracture

It is essential to obtain as adequate an immobilization as possible. This usually means the application of a plaster cast, and, in general, one immobilizes the joint above and below the fracture site. In regard to fractures of the tibia, a long leg cast from toes to groin is applied with the foot at a 90° angle and with the knee flexed 20° to 30° in order to prevent rotation of the fractured bone. In the case of a fractured shaft of the femur, immobilization may be by means of traction, utilizing a K-wire through the tibial tubercle and a balanced suspension. Later (in 10 to 14 days) if no infection develops and primary healing of the soft tissue occurs, the shaft can be nailed with a medullary nail.

(e) Prevention of Infection

Irrigation of the wound and debridement is of the utmost importance. The administration of antimicrobial agents in adequate dosages and by appropriate routes is in our opinion of great importance. One should always take a culture of these wounds and do sensitivity tests. The open fracture should always be treated with appropriate antibiotics.

(B) Choice of Antibiotics

1. To understand the rationale of proper antibiotic therapy, one must first know what organisms are most likely to be found in open wounds. It is beyond the scope of this paper to

go into great detail on the bacteriology of traumatic wounds. Suffice it to say, that the most common contaminants have been shown to be the beta hemolytic *Streptococcus*, *Staphylococcus aureus* and *albus*, *Clostridia*, enteric *Streptococcus*, *Proteus*, *Pseudomonas*, and *Coliform* bacilli. Therefore it behooves us to direct our antibiotic therapy against these organisms primarily. The authors stress that every open wound involving a fracture should be cultured and sensitivity tests run. This will enable a change in treatment later if the clinical course and sensitivity test indicate the need for such an adjustment. Most surgeons agree that the antibiotic of choice (prior to the determination of the contaminating organisms and their sensitivity spectra) is penicillin. Of course, this is not applicable if the patient is allergic to penicillin. This possibility can pose a vexing problem, especially so in the unconscious patient from whom a past medical history is unobtainable. In any doubtful case a skin test is recommended and may be of help. Nevertheless, the majority of patients tolerate penicillin well.

(a) Dosage and Route of Administration

There is a wide variation in recommended dosages of penicillin for treatment of the open fracture. Suggestions of adequate dosages have ranged from 300,000 units of aqueous penicillin I.M. q 12h to (1) 10 to 20 million units of aqueous penicillin I.V. or I.M. daily. We are in agreement with those who advocate massive dosages of penicillin. This philosophy is based on experimental work done by Altemeier (2) who has shown the value of high concentrations of penicillin in destroying *Staphylococcus* organisms, even those which are penicillin resistant and also in destroying certain *Clostridia*. It is important to begin the antibiotic therapy early. The route of administration is also of great importance (3). The intravenous route is preferable the first two days, since often the patient is in varying degrees of shock and intramuscular deposits of penicillin are absorbed erratically. The total length of treatment is usually five to seven days. The use of penicillin should be supplemented by Streptomycin at the standard dosage of 0.5 Gm I.M. bid for five to seven days. Broad-spectrum antibiotics like tetracycline and chloramphenicol are usually held in reserve. However, on occasion the authors have given chloramphenicol in addition to penicillin and streptomycin. No antago-

nistic action or adverse effects were noted in these cases. This approach was employed in wounds that had been severely contaminated or in which there had been some unavoidable delay in getting the patient into surgery. To summarize this section the authors recommend intensive and massive antibiotic therapy for the open fracture. It is urged that the penicillin be given early (often it may be started in the emergency room) and by the intravenous route. Of course, if shock is present the administration of whole blood would naturally take priority over the intravenous administration of aqueous penicillin.

(C) Proper Handling of the Wound

1. The emergency room physician is urged to take care in not adding to the contamination of these wounds. The physician who first sees these injuries should scrub his hands for 5-10 minutes with Phisohex, and he should wear a sterile mask and gloves when examining these wounds. There is no excuse for carelessness in this regard, just because the doctor feels secure in the knowledge that he has antibiotics to fight infections. Also gentleness in transporting these patients to the X-Ray department and then to surgery is mandatory with application of appropriate splints if not already in place. The same aseptic technique should be used post-operatively when dressing changes are made in those wounds not closed primarily. The danger of cross-contamination is always present in the hospital, especially in the trauma wards.

(D) Tetanus and Gas Gangrene Protection

1. If the patient has had previous active immunization against tetanus, the physician can feel secure by giving 0.5 to 1cc. of fluid tetanus toxoid as a booster. However, if no previous active immunization has been given, then 3,000 to 10,000 units of TAT are indicated after a negative skin test. This provides passive immunization.

If allergy to horse serum is demonstrated by the skin test, then bovine serum may be used if the skin test to it is negative. If the patient is allergic to both horse and bovine sera (and the authors have seen several cases like this) then either very small desensitizing doses of TAT may be given or the physician may elect to run the risk. This is always a difficult decision.

2. A difference of opinion exists in regard to gas gangrene prophylaxis. Some authorities suggest one ampule of anti-gas gangrene serum. In a recent book published by the Committee on Trauma of the American College of Surgeons the following statement is made, "Gas gangrene antitoxin is not effective in preventing Clostridial myositis, but it is used in the treatment of established infections by those organisms." And there are some authors who feel that gas gangrene antisera has not been shown to prevent or even to help in treatment of the actual infection. In this respect penicillin is again of proven value. Of course, proper debridement of necrotic tissue is also of paramount importance in prevention. Despite the feeling of some, it is probably wise to give the patient gas gangrene anti-serum, if only to protect the physician from any possible medico-legal complications.

(E) Summary

This article has stressed the importance of the early care of the open fracture with emphasis upon proper irrigation, adequate debridement and immobilization, and aggressive prophylaxis against infection. It is hoped that this paper will aid the physician who treats trauma in solving some of the difficult and complex problems that he faces in this field.

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TEACHING SEMINAR

Departments of Surgery and Pediatrics
University of Arkansas Medical Center
Little Rock, Arkansas



PATENT DUCTUS ARTERIOSUS

An Analysis of Eighty Cases

Frank B. McCutcheon, M.D., Masauki Hara, M.D.,

Ben M. Lincoln, M.D. and William T. Dungan, M.D.

THE PURPOSE OF THIS paper is to review 80 patients with patent ductus arteriosus who have been diagnosed and surgically treated at the University of Arkansas Medical Center since 1953. Patients with other obvious and dominant co-existent cardiovascular anomalies were not included in this series, although some in this series were found to have other associated anomalies at operation. A patent ductus arteriosus has been found and closed in 8 patients undergoing open-heart procedures for congenital intracardiac lesions but, with possibly one exception, was of secondary importance.

The age of the patients ranged from 4 weeks to 42 years with the usual predominance of females. There were 4 operative deaths in this series of whom 2 were in early infancy under the age of 3 months. Nineteen patients or 23 per cent of the group were under 2 years of age of whom 13 were under 1 year of age.

Diagnosis

The characteristic clinical findings of an uncomplicated patent ductus arteriosus are well-

known, particularly the thrill and the classical continuous machinery murmur heard maximally in the second left intercostal space. The heart usually exhibits varying degrees of hyperactivity depending on the magnitude of the left to right shunt. The peripheral pulse is often bounding and the pulse pressure widened. The diagnosis can be made without resorting to special diagnostic studies although roentgenograms of the heart and lungs and electrocardiogram are often helpful.

Much has been written on the atypical patent ductus arteriosus in which the clinical picture and findings differ due to varying degrees of pulmonary hypertension. These patients are often poorly developed and malnourished and frequently exhibit symptoms of cardiac failure. The murmur may be systolic and in part diastolic or entirely systolic, depending on the degree of hypertension. The pulmonary second sound is accentuated. Occasionally, the murmur is entirely absent indicating that the shunt is completely balanced. It is often difficult to distinguish this

variant of an open ductus in infants from atrial septal defect and ventricular septal defect and other congenital intracardiac lesions. However, as Nadas (12) has observed, it is mandatory that the presence of an atypical patent ductus arteriosus be excluded by special studies in any infant even remotely suspected of harboring this lesion.

Although the development of pulmonary hypertension with an open ductus in an adult is mainly ascribed to the effects of long-standing increased pulmonary flow, the pathogenesis of pulmonary hypertension in infants and children with an open ductus is not clearly understood. Civin and Edwards (4) have postulated that the pulmonary hypertension in infants may be due to the persistence of the congenital narrowing of the pulmonary vascular bed, serving as a compensatory mechanism to maintain adequate cardiac output in the presence of a large left-to-right shunt. However, many authorities (12, 20), do not accept this theory as the explanation for the pulmonary hypertension found in the majority of infants. Several other factors appear to be implicated in the evolution of the most common form observed clinically in infancy in which the flow through a large ductus appears to be largely responsible for the hypertension. Space does not permit a detailed discussion of this subject.

A number of investigators have emphasized the necessity for special studies such as right heart catheterization or retrograde aortography in making the correct diagnosis in the atypical open ductus. The diagnosis was made or strongly suspected on the basis of clinical and routine laboratory evidence in almost all of our patients. However, right heart catheterization was performed in 11 and retrograde aortography in 11 instances. Both procedures were carried out in 2 patients. Although a presumptive diagnosis of patent ductus arteriosus can be made in finding increased oxygen saturation at the pulmonary arterial level at right heart catheterization, passage of the catheter through the ductus itself provides the only positive proof of the diagnosis. Retrograde aortography may be more conveniently carried out than catheterization, particularly in the small infant. Radiopaque dye is injected into a catheter which is passed through the femoral or brachial artery into the ascending or transverse arch of the aorta. The appearance of dye in the pulmonary artery almost simultaneously with that in the aorta substantiates the existence of a com-

munication between the aorta and pulmonary artery, a finding which is virtually confirmatory but not completely diagnostic of a patent ductus arteriosus. The catheter was unexpectedly passed through the ductus into the pulmonary artery at the time of retrograde aortography in one of our patients.

Ductus in Infancy

There were 24 patients with this lesion in infants under 3 years of age. Nine of these patients were 3 months or under and posed difficult therapeutic problems from both medical and surgical aspects. Infants of this age are prone to develop congestive failure as their pulmonary vascular resistance regresses which, at times, may be refractory to the most intensive medical regime. Ziegler (23) and Adams and associates (1) have described small infants under their care who died from heart failure, pneumonia or other complications of an open ductus despite digitalization and adjunctive medical measures. These authors unanimously concluded that operative correction of the ductus had offered the sole hope for salvage despite the precarious risk. At least 9 infants collected from 6 representative series, all of whom were 3 months or younger save one, have died in this manner. Two of the deaths in this series



Fig. 1

Characteristic retrograde aortogram showing simultaneous visualization of the ascending aorta and pulmonary artery.

occurred in infants below 3 months of age, 1 of whom was in pulmonary edema resulting in severe cerebral anoxia at the time of emergency operation. The policy has been adopted in this institution of recommending operation in any symptomatic infant, no matter how small, who has not responded promptly to medical treatment, including those who, although not in frank congestive failure, are underdeveloped, not gaining weight and are generally doing poorly. This group of patients is to be the subject of a separate communication (24).

The Atypical Patent Ductus

There were 18 patients with pulmonary hypertension of whom 7 were documented objectively with pressure measurements at catheterization, excluding a 23 year old white female with selective cyanosis of the trunk and lower extremities from reversal of flow. The latter patient, who is categorically inoperable, represents the final stage of progressive severe pulmonary hypertension. Of the 18 patients with pulmonary hypertension, one had virtually no murmur, 4 exhibited only a systolic murmur and 1 a distinctly separate systolic and diastolic murmur. In addition, there were 12 other atypical murmurs detected in this group of patients. In keeping with other reported series, 13 of the 18 patients with atypical murmurs were in infants under 3 years of age.

Unusual Variants of Patent Ductus Arteriosus

Several unusual variants of the patent ductus arteriosus were encountered in our patients. An 18 month old boy presented himself with severe respiratory distress which was attributed to acute congestive failure from a patent ductus arteriosus. The left lung was opacified on a chest film but the correct diagnosis of massive atelectasis was not made pre-operatively. During emergency closure of the ductus, atelectasis of the left lung due to compression of the left main stem bronchus from a dilated pulmonary artery was found. Rivkin (14) has reported 8 patients with the syndrome of atelectasis of the left upper lobe or lung due to ventricular septal defect and other lesions. In each instance, the mechanism was identical, namely pressure of the left upper lobe or main stem bronchus from an enlarged pulmonary artery due to markedly increased blood flow.

There were 5 patients with aneurysmal dilatation of the aorta, the largest of which measured 3 cm. in diameter in a white woman in her early

30's. Follow-up has failed to reveal any evidence of the dilatation observed at operation.

One patient, who has been previously reported, had a ductus arteriosus which originated from the ascending arch of the aorta and inserted into the proximal portion of the left pulmonary artery. This patient posed a difficult technical problem at surgery, requiring an approach through the pericardial sac as in the manner described previously for closure of an aortopulmonary fistula window (16).

A 3 month old colored infant has a patent ductus arteriosus associated with a right sided arch and descending aorta. Although this infant had a left sided ductus, the possibility was considered that the ductus could be situated on the right side and consequently inaccessible from the conventional left sided approach. This case was approached through a mid-line sternotomy.



Fig. 2

Roentgenogram showing atelectasis of the left lung due to compression of the left main bronchus by a large patent ductus arteriosus.

Indications for Closure of Patent Ductus Arteriosus

There is presently almost unanimous agreement that a patent ductus arteriosus in children and young adults should be closed even when asymptomatic. Most cardiologists and surgeons feel that operation should be carried out by the ages of 3 to 5 in a typical case. We feel that the ductus can be safely closed in any patient who has attained the age of 2 years.

The indication for operation is more urgent in a patient with pulmonary hypertension, recognizing that the mortality in this group of patients may be significantly increased. Most investigators agree that it is worthwhile to attempt to close the ductus in a patient even with a balanced or near-balanced shunt, since it is felt that the pulmonary vascular changes may regress once the shunt has been eliminated. However, there are cases documented in the literature in whom the pulmonary hypertension has remained stationary despite obliteration of the open ductus.

Operative Technique

A number of techniques have been described for closure of a patent ductus arteriosus. Gross (7) and Blalock (3) and Scott (17) have been identified as the pioneers in developing a safe and practical operative approach. The majority of surgeons prefer to divide and close the ductus arteriosus, utilizing one of the special vascular clamps in occluding the cut end of the structure. However, the multiple ligation technique of Blalock (3) has yielded excellent results provided that the technique is properly employed. Application of a single ligature has often resulted in re-cannulization of the ductus and is not longer employed. In our series the multiple ligation technique was employed in 18 patients and division of the ductus in the remaining 62 patients. The technique employed in ligation of the ductus is essentially the one described by Scott (17) and Blalock (3). After the ductus has been isolated, two #1 or #2 black silk ligatures are tied down subsequently at either end so as to just barely occlude the flow. A second pair of single ligatures are placed centrally and tied tightly as possible. A fifth suture of 00 silk is then placed as a transfixion suture in the middle of the ductus.

The technique for division of the ductus has been modified over the past several years. Presently a two clamp technique is used in which two

straight Atrigrip vascular clamps are applied after the ductus arteriosus has been isolated. The ductus is divided and after the posterior aspect of the ductus has been thoroughly freed, a curved clamp of similar design is applied beneath the first clamp occluding a small portion of the aorta or pulmonary artery. An adequate cuff is provided which can be easily closed with a double, continuous row of 5-0 black silk. The technique is felt to facilitate the isolation of the ductus arteriosus by permitting the surgeon to leave the difficult part of the dissection, that is, the posterior blind area of the ductus, until the area is adequately visualized by dividing the ductus.

It is advantageous to isolate the descending aorta above and below the aortic end of the ductus arteriosus in the more complicated situations such as the patient with an unusually broad or short ductus or the older patient with an extremely friable lesion. In the event that the ductus is torn the aorta can be temporarily occluded to permit control of the bleeding site in an orderly, organized manner. The vascular clamps should be in the best working order. In one patient, the application of a Potts type of clamp which did not occlude perfectly caused a tear in a ductus in a patient with a balanced shunt.

Mention should be made of the operative management of small, ill infants. They are prone to develop cardiovascular collapse at the time of operation, a complication which has been observed in 5 of 9 infants under 3 months of age. It is advisable to close the ductus as expeditiously as possible. In the event that the cardiac action is ineffective and weakening, the ductus should be quickly and temporarily ligated with a single heavy silk ligature before the heart is manually assisted. In 3 infants who survived despite the development of cardiovascular collapse, the prompt ligation of the ductus in this manner was felt to be the critical factor in their survival; since it resulted in a dramatic recovery of the heart within a matter of 15-30 seconds. The posterolateral approach is preferred particularly in the ductuses in which technical difficulties are anticipated.

Mortality Rate

The mortality rate in an uncomplicated ductus should be in the range of 1 to 2 per cent. However, the mortality in infancy or in the patients with significant pulmonary hypertension is considerably higher, varying between 5 and 50 per

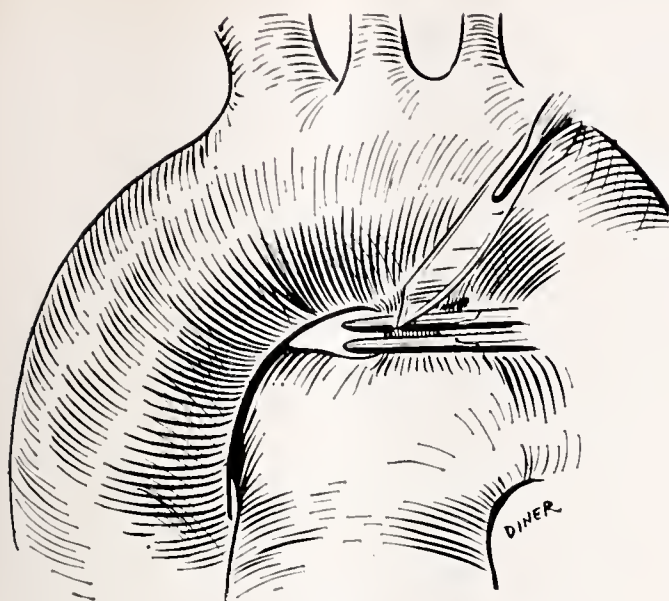


Fig. 3a

Artist drawing showing technique employed.

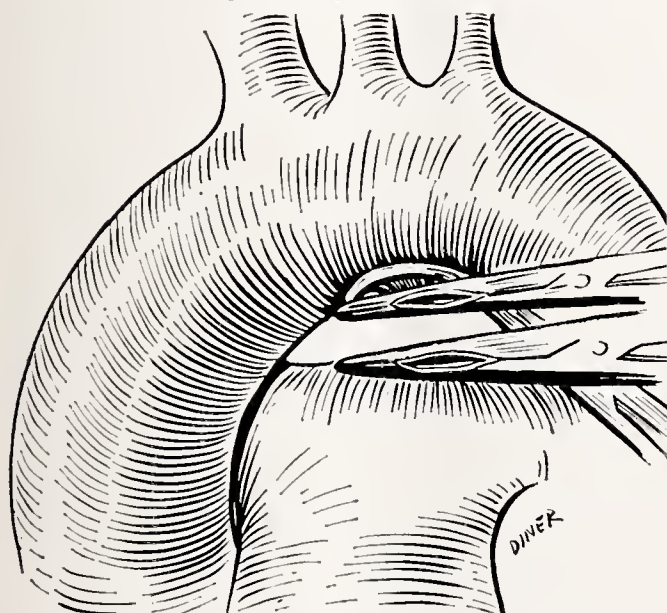


Fig. 3b

Artist drawing showing technique employed.

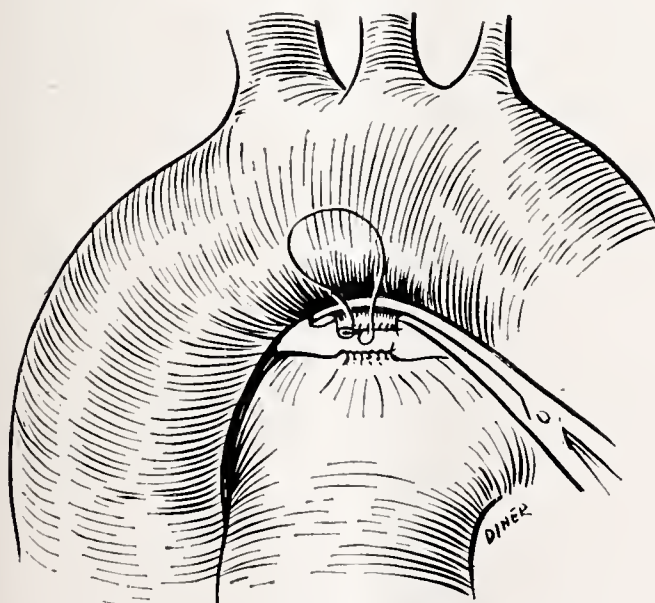


Fig. 3c

Artist drawing showing technique employed.

cent. Four operative deaths were encountered in this series of patients. Two occurred in infants below 3 months of age and 1 in a 3 year old girl with a bi-directional shunt representing an advanced degree of pulmonary hypertension. The remaining death was ascribed to technical difficulties attempting to control an unusually broad and short ductus arteriosus.

Deaths

#1 No. 12 93 56 This was a 2 month old 7 lb. 12 oz. premature infant who had a very poor growth record, complicated by constant upper respiratory infections and incipient failure. The heart was beating feebly with cardiovascular collapse when the chest was opened. The heart was assisted without response so that the ductus, which was flaccid, was quickly isolated and divided. The cardiac action ceased prior to completion of the operation.

#2 No. 18 17 63 This 4 week old 6 lb. 10 oz. male infant developed severe congestive failure from a large patent ductus arteriosus. A retrograde aortogram had confirmed the diagnosis. While awaiting surgery he developed pulmonary edema, became apneic and almost moribund. He was rushed to the Operating Room and intubated and the ductus quickly ligated. The presence of a congenital aortic stenosis was strongly suspected on the basis of findings at operation. The infant survived the operation despite obvious cerebral damage due to ischemia resulting in convulsions. He did surprisingly well until he expired rather unexpectedly on the third post-operative day. The case demonstrated the danger of procrastination in a baby with progressive cardiac decompensation from a patent ductus arteriosus.

#3 No. 13 21 35 This patient was a 3 year old poorly developed girl who had severe pulmonary hypertension with approximately equal pressure in the pulmonary and systemic circulations resulting in a bi-directional shunt. The clinical picture was atypical with only a slight systolic murmur being audible. Right heart catheterization was required to establish the diagnosis. As the large patent ductus arteriosus was being temporarily occluded with Potts clamp to measure the hemodynamic effects on the pulmonary circulation, the clamp slipped causing a tear in the wall of the ductus. It was necessary to clamp and divide the ductus before pressure measurements could be taken in the pulmonary artery. The occlusion of

the ductus did not appear to have a deleterious effect since there was a fall in the pulmonary arterial pressure. As the chest incision was being closed the heart suddenly developed an arrhythmia and fibrillated and could not be resuscitated.

#4 No. A7 25 32 This failure occurred early in our experience from technical difficulties attempting to close an extremely broad, 1.8 cm., and short ductus arteriosus, the widest encountered in this series. An anterior approach was utilized and during mobilization of the aorta prior to dissection of the periductal area a tear was sustained in the posterior medial aspect of the proximal descending aorta, which was extremely friable, and application of a clamp to effect a repair resulted in a second tear at the site where the clamp had been applied. This sequence recurred twice subsequently with the aortic tear extending proximally into the distal part of the transverse arch. The tear was ultimately controlled and the ductus arteriosus was divided without difficulty. The patient expired 2 hours postoperatively from intractable hypovolemic shock. This patient is considered to represent the only instance where death was attributable to technical deficiencies on the part of the surgeon. It is, moreover, felt that the posterolateral approach should have been employed to provide the optimal exposure of the large ductus arteriosus.

Follow-up Study

The patients with a patent ductus arteriosus as the sole lesion have done uniformly well and considered virtually as normal individuals. Fifteen of the patients, although greatly improved, have a persistent systolic murmur which is ascribed to various causes, among which congenital aortic valvular stenosis and small atrial ventricular septal defects have been considered. They are being observed with additional surgery contemplated when and if they manifest signs of cardiac deterioration.

Summary

A brief review of 80 patients with patent ductus arteriosus has been presented. There were four deaths in the group all of whom were considered to be complicated.

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ELECTROCARDIOGRAM

OF THE MONTH

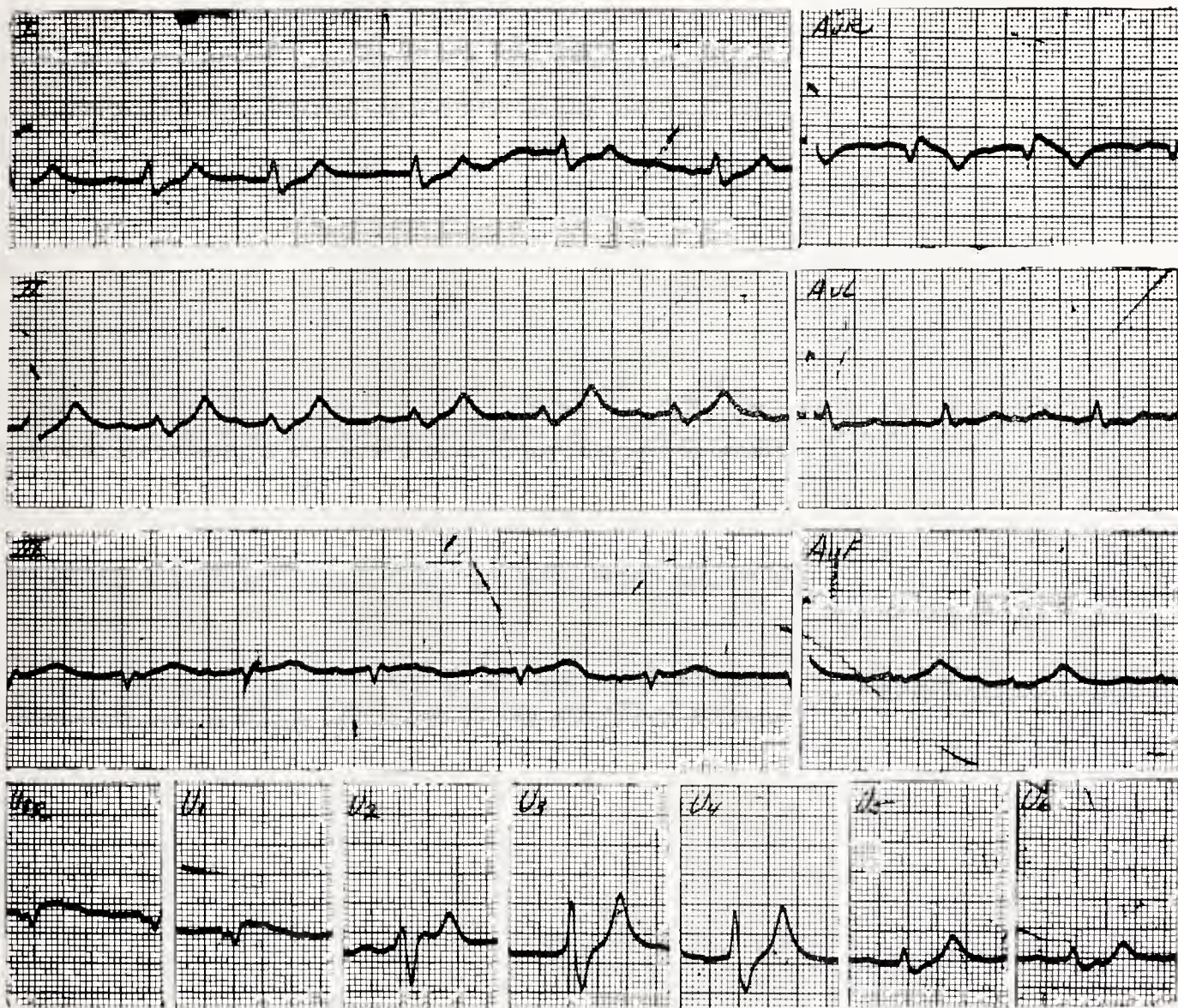
WHAT IS YOUR INTERPRETATION?

AGE: 84 SEX: F BUILD: Slender BLOOD PRESSURE: 80/60

MEDICATION: None

HISTORY: Admitted in shock, anuric, dehydrated, with azotemia.

Answer on Page 121

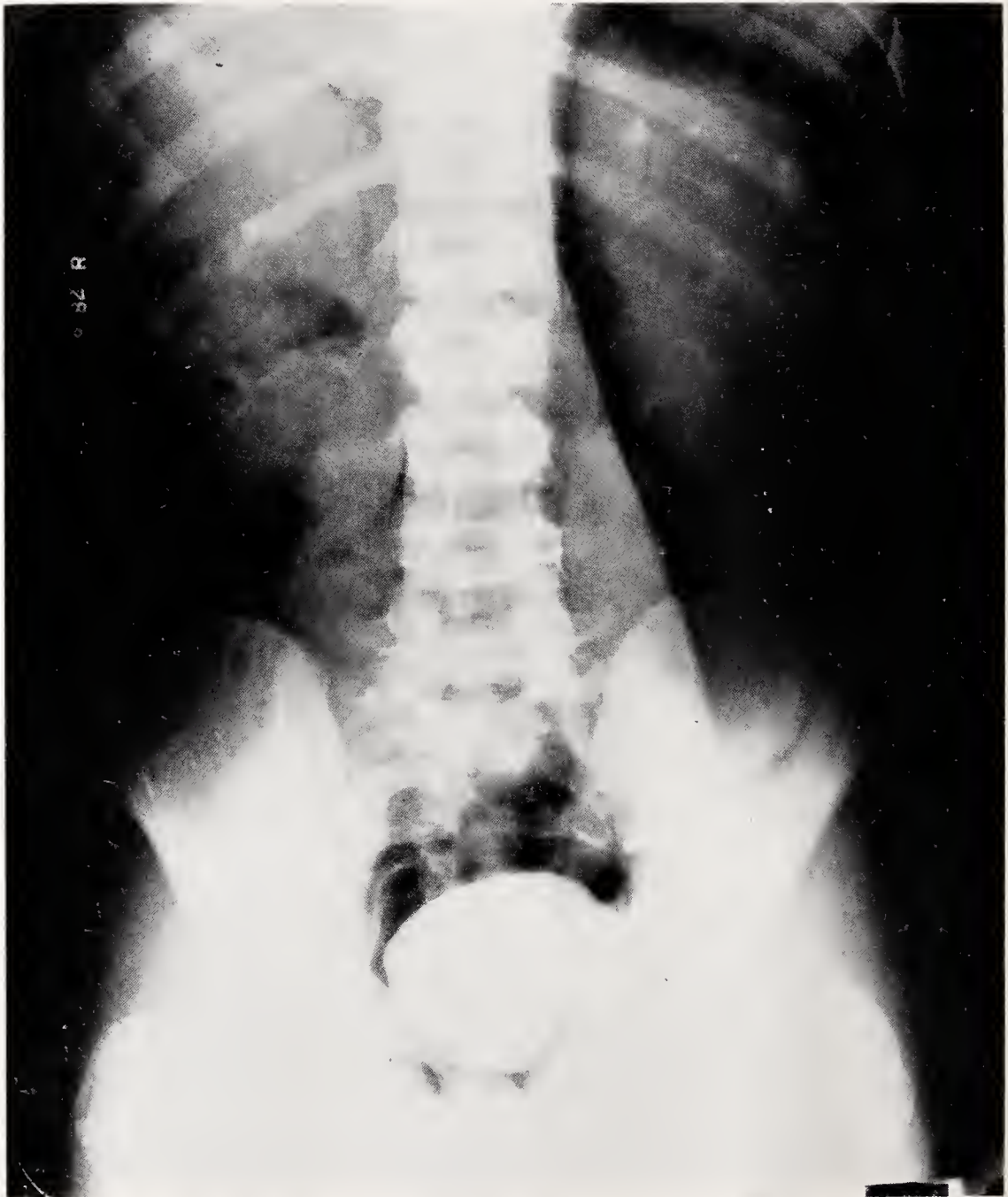


*Prepared by J. S. Taylor, M.D., Professor of Medicine,
The Department of Medicine, University of Arkansas Medical Center*

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 121





PUBLIC HEALTH AT A GLANCE

HISTOPLASMOSIS IN ARKANSAS

Harvie R. Ellis, D.V.M., Director
Division of Veterinary Public Health
Arkansas State Board of Health

Histoplasmosis is a fungus disease which occurs in many parts of Arkansas and other States. It involves both man and animals. The disease has been regularly diagnosed and reported by the medical profession in Arkansas for a number of years. In animals, especially dogs, the disease was infrequently diagnosed and reported by the veterinary profession until May, 1960, when a cooperative study of several of the fungus diseases was initiated. Since that date twelve cases of canine histoplasmosis have been diagnosed and confirmed by laboratory isolation of the organism *Histoplasma capsulatum* from pathological specimens.

The attached map indicates that the infectious agent is prevalent in almost every county in Arkansas. The mode of transmission for both man and animals is reported to be air-borne by means of inhaling spores of *Histoplasma capsulatum* from infected soil. It is also reported that soils with high organic content are very likely to be the source of infection of this fungus disease. Such sources are old chicken houses, pigeon lofts, places frequented by other birds, in caves and other locations where bat droppings may be present. Many investigators were of the opinion for many years that the fungus grew only in the soil of rural areas and small towns. In recent years the fungus *Histoplasma capsulatum* has been found in soil contaminated by bird droppings taken from beneath the trees in parks located in large eastern cities. The literature does not indi-

cate that the disease is transmitted from animal to man, man to man, or animal to animal.

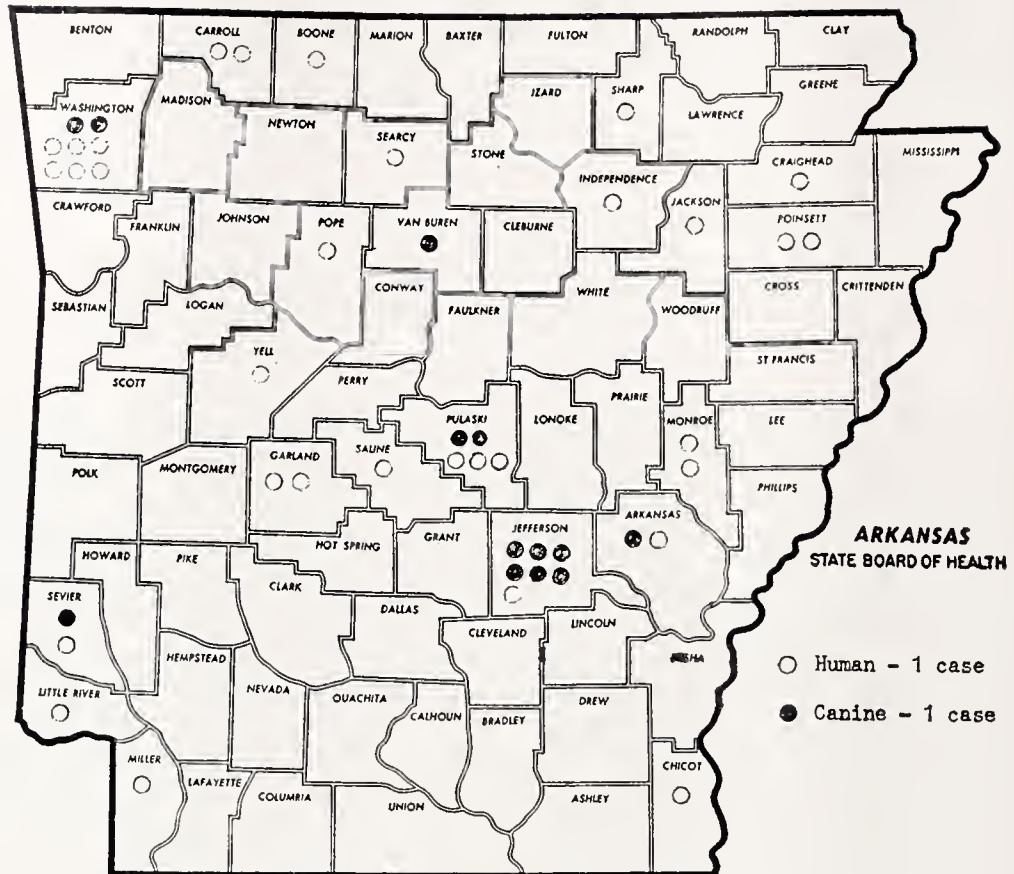
Human Histoplasmosis

A very interesting case of disseminated histoplasmosis came to the attention of the Arkansas State Health Department in September, 1961, which involved a 43-year-old white male. This individual was born in New England, lived a number of years in New Mexico, retired from the government service and moved to North Arkansas, where he purchased an old abandoned farm. Investigation indicates that this man had never been ill a day in his life until he engaged in a project to restore to a useful purpose the old buildings such as old barns, hen houses, brooder house, and tool shed. These buildings had been idle and undisturbed for many years. This individual became quite ill about three weeks after having engaged in repairing and cleaning out the buildings which had formerly been used for poultry production.

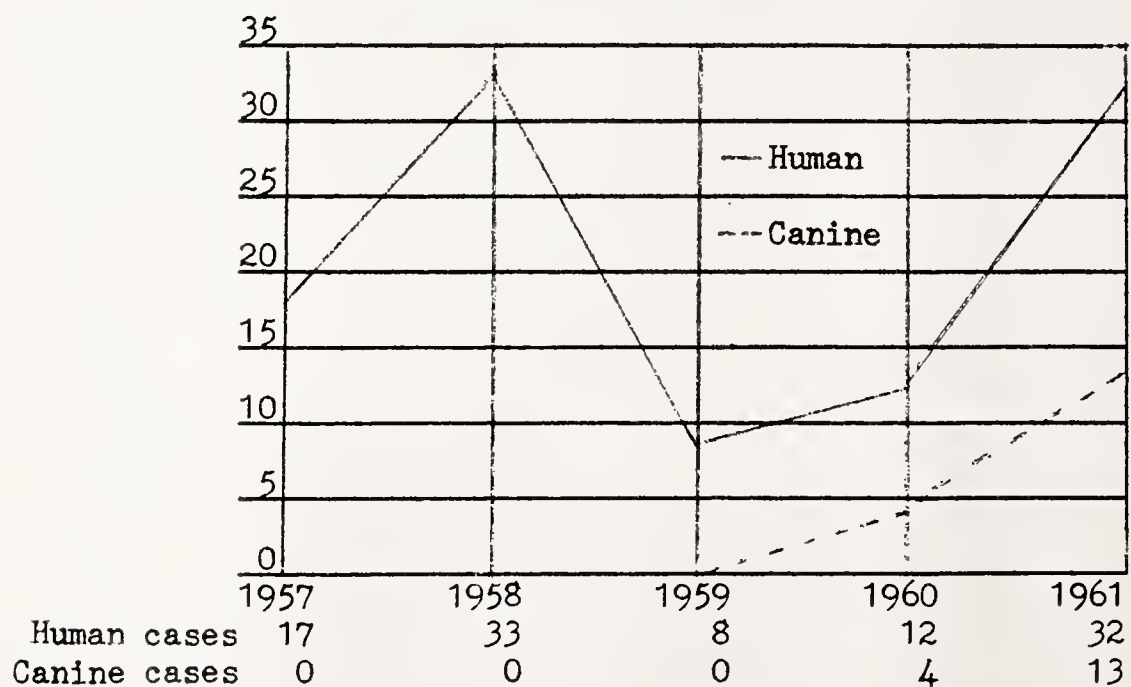
He was reluctant to see a physician for a few days following onset of illness. However, it soon became evident that a physician must be consulted without further delay. The early symptoms were urinary frequency, fever, and chills. The patient was treated for the next four days with some improvement of the urinary frequency. However, he continued to present a daily fever of 102° F. with severe sweating, chilly sensations, generalized body aching, headaches, loss of appe-

HISTOPLASMOSIS IN ARKANSAS

REPORTED HUMAN AND CANINE HISTOPLASMOSIS IN ARKANSAS, 1960-61



HUMAN AND CANINE HISTOPLASMOSIS IN ARKANSAS 1957-1961



tite, weakness and right anterior chest pain, which was pleural in character. There was a severe cough which was nonproductive. An x-ray of the chest at this time was taken and reported as abnormal. The patient was continued on treatment with antibiotics but the condition remained on a febrile course.

The physician who attended this individual provided the following case history. The patient was hospitalized in an acutely ill condition about three weeks after date of onset, still febrile, coughing considerably, appearing to have right-sided chest pains and mildly dyspneic. The usual physical examination was within normal limits except the patient's temperature was 100° F.; the chest revealed mild labored breathing; percussion on the right posteriorly and laterally was dull at the case for approximately 3 cm., which did not decrease with respiration. A few scattered rales were noted anteriorly and posteriorly, also laterally on the right side. There was no cervical adenopathy.

Extensive laboratory tests were completed on the patient. In the search for a fungus disease, many of the early examinations were negative. Serology for fungi of the yeast phase antigen titer was positive 1:32; the mycelia phase was negative; blastomycosis was 1:16; the coccidioidomycosis was 1:256; the hemagglutination was 1:128. At this time an x-ray of the chest presented a diffuse miliary disease throughout both lungs with emphysematous blebs of both apices above the level of the clavicle. Bilateral basilar pleural fluid was present with interlobar components. Other tests at this time were essentially negative relative to the evidence of any fungi.

The hospital record indicates that the patient's temperature spiked at 105° F. The patient enjoyed an improved appetite and a decrease in chest pains. At this time, which was about two weeks after hospitalization, the patient presented the following change: x-ray revealed that the basilar pleural fluid had subsided and a slight weight gain had taken place. The diagnosis was histoplasmosis, presumptive.

It was about November 7, 1961, when the State Health Department was informed that *Histoplasma capsulatum* had been isolated from biopsy of the bone marrow and liver, as well as from the sputum. The patient now had a definite diagnosis of *disseminated histoplasmosis*. It was estimated that the patient would be released from

the hospital in about four weeks if he continued to improve.

In November, five soil samples were obtained at random from the area where this individual was reported to have acquired the infection. These soil samples were mailed to the U. S. Public Health Service, Kansas City Field Station, Kansas City, Kansas, for study and examination. On November 27, 1961, sample No. 4, which consisted of soil contents from the inside of a small hen house was reported positive for *Histoplasma capsulatum*.

The epidemiology on this case of histoplasmosis in man was considered complete when the laboratory report was received from the U. S. Public Health Service, Kansas City Field Station, that *Histoplasma capsulatum* had been isolated from soil sample No. 4.

The reclaiming of an old farmsite certainly has its hazards. This appears to be especially true if the location formerly supported some type of poultry operation. This particular farmsite had been idle for more than ten years but it still retained a soil condition around the old farm buildings which was highly suitable for the growth of the fungus. This is an appropriate place to point out that there are no effective preventive measures recorded for the control of histoplasmosis in man and animals. Amphotericin B., a Squibb product, appears quite often in the literature when treatment is described for human patients. This same drug has been used in canine cases to a limited extent. There appears to be no suitable drug treatment for the disease.

Histoplasmosis is now recognized as an important medical problem in many areas of the United States. Consult the attached map and chart for additional information relative to the present reported prevalence and distribution of the disease in Arkansas.

Canine Histoplasmosis

From the same general vicinity of Arkansas is an interesting report on a canine case of histoplasmosis which involves a 3-year-old male Pointer dog. This animal came to the attention of the State Health Department on October 17, 1960, when the animal was picked up at Bee Branch, Van Buren County, Arkansas. This Pointer was raised and maintained at Harrison, Boone County, Arkansas, on a place that had a history which stated that everyone who had lived on the place lost their dogs from some unknown disease.

The owner of the dog decided to donate the animal to the observation program on fungus diseases. At this time the Pointer presented the following symptoms: extreme loss of weight, a loud chronic cough, anorexia, weakness, and depression. Upon arrival at the Bellvue Animal Clinic, Little Rock, Arkansas, the Pointer was put to sleep and a post-mortem was completed without delay.

The necropsy presented an extremely large mediastinal lymph gland. The enlargement was half again as large as a closed fist. The gland contained lesions throughout the enlarged mass in the form of caseated material. Pressure from this enlarged mass had almost closed the trachea at the bifurcation. This pressure and reduction of the lumen of the trachea accounted for the noise and some of the difficulty pertaining to the animal's breathing. Both lungs contained many nodules together with large solid areas. It is estimated that fifty per cent of the lung tissue contained lesions. The submixillary lymph glands were enlarged, the viscera and other organs appeared normal. Extensive laboratory samples were taken and mailed to the U. S. Public Health Service, Kansas City Field Station, Kansas City, Kansas, for observation and examination.

The final report received from the U. S. Public Health Service on these laboratory specimens contained the following pathological and microscopical findings:

Liver—Section of liver shows considerable alteration of the normal architecture with scattered micro-foci of necrosis with infiltration of polymorphonuclear leukocytes, occasional small abscesses, passive hyperemia with necrosis of hepatic cell around the central vein and pools of serous fluid in these areas. There is also necrosis of the hepatic cells and considerable deposition of fat in the hepatic cells. In addition, there is considerable yellowish-brown pigment in the literal phagocytes and a hyperemia. Sublingual salivary—no significant lesions.

Kidney—Show thickening of Bowman's capsule, swelling and atrophy of the glomerular tufts with attachment of the glomerular tufts to Bowman's capsule. The glomeruli also show marked distention of capillaries and loss of cellularity and morphology of the glomerular tuft. There is also atrophy of the glomerular and in some of them there is only a small portion of glomerular tuft and the rest of the space is filled with a fibrinous materia. There are also areas in the cortex showing fibrosis of the interstitial tissue and slight infiltration of lymphocytes.

Spleen—Shows follicle formation, but densely stained basophilic cells are not numerous, red pulp in moderate quantity, considerable yellowish-brown pigment in the literal phagocytes and the capsule and trabeculae are thickened. Tip of muscle tissue shows scattered irregular areas of necrosis and infiltration of inflammatory cells. Also areas showing degeneration of the muscle tissue. There are also large areas of necrosis of muscle or myxomatous tissue in which there is considerable deposition of calcium on the periphery of the lesions and sometimes scattered throughout the necrotic area.

Lung—Section of lung shows hepatization with single and coalescing granulomas. These granulomas have necrotic centers surrounded by a layer of large mononuclear cells, infiltrated with polymorphonuclear cells, lymphocytes, and plasma cells. The periphery of the lesions are enclosed in dense bands of fibrous connective tissue. Numerous clumps of *Histoplasma capsulatum* are seen in the large mononuclear cells in the granulomas with silver methenamine and Bauer stains. Numerous abscesses are also seen scattered throughout the lung. The pleura show marked thickening with strands of fibrous connective tissue, infiltrated with inflammatory cells.

DIAGNOSIS—*Histoplasmosis* of lung (chronic).

Secondary diagnosis—pleurisy hepatitis and glomerulonephritis.

March, 1962



EDITORIAL

THE ANTIQUATED CORONER SYSTEM

A. Rosendale, M.D.*

THE POSITION OF COUNTY CORONER is the weakest of all political offices, yet it is potentially the strongest. By law it is the duty of the coroner to investigate any death where there is a reasonable suspicion of foul play. Therein rests the decision as to whether the death is homicide, suicide or accidental. It is safe to say that many a homicide has been passed off as accidental, suicide or death from natural but unknown causes because of the ineptness of the examining officer.

There are two great deficiencies in the system as it is presently set up. The primary deficiency concerns the qualifications required for a man to throw his political hat into the ring. There is no regard for educational aptitude because all a candidate needs is a valid poll tax receipt and a filing fee. Under the law a common laborer is just as eligible as a physician with special training in forensic pathology.

The financial reward is just as important as the political qualifications. There is no salary. Remuneration is on the basis of fee for service. For the holding of an inquest, the coroner receives a fee of twenty five dollars. His jurors receive one

dollar each. In the event that a physician is called his fee is the same as that of a juror.

These deficiencies can be easily corrected if we members of the medical profession will put enough pressure on our state legislators. The qualifications for candidacy must be limited to those who have had medical training, preferably pathologists. But that alone will not be enough. A salary must be established commensurate with the training of the individual involved. The fee for service system must be abolished. Only in that way can we ever hope to have an efficient coroner system.

Summary

A brief discussion is presented concerning the major deficiencies of the coroner system as it is presently set up. These deficiencies are the lack of training qualifications for the office and low financial reward. These deficiencies can easily be corrected by an act of the legislature. The office must be limited only to physicians, preferably pathologists and the fee for service payment method must be abolished with an established salary commensurate with training taking its place.

*Eudora, Arkansas. Coroner of Chicot County, Arkansas.

MEDICINE IN THE



Cuban Physicians Award Commendation to VA

The University of Havana School of Medicine in Exile and the Cuban Medical Association in Exile have awarded special commendation to the Veterans Administration Department of Medicine and Surgery, and especially the Coral Gables VA hospital near Miami, Florida, for demonstrating "to the free world how democracy reacts to meet the problems generated by the forces of Communism."

During the past year or more some 1,200 destitute self-exiled Cuban physicians have fled to the United States, entering through the port of Miami.

More than 300 of these have sought help from the VA through its hospital in Coral Gables, Florida. To date the VA has been able to place 59 of the most competent of the physicians in 40 of the 170 VA hospitals across the nation.

Officials of the Coral Gables VA hospital have active files on another 150 physicians, including 17 tentative commitments to some of the 99 VA hospitals which have indicated need for filling shortages in various professional categories. Another 25 processed by the VA have accepted employment with the Public Health Service and with universities.

Included among the refugee doctors are young graduates lacking a year or so of completing their residency and who are encouraged to continue their training to enable them to pass their specialty boards to enhance their employment.

In obtaining the service of these physicians through the VA processing center at Coral Gables, hospitals are finding the answer to the long-standing problem of shortage of available physicians in a number of specialties.

* * * *

THE MONTH IN WASHINGTON

Washington, D. C.—Top officials of the American Medical Association at a White House con-

ference with President Kennedy stood pat in support of the Kerr-Mills program and in opposition to providing health care for the aged under social security.

President Kennedy also maintained his position that the social security mechanism should be used.

Using Boisfeuillet Jones, special assistant to the Secretary of Health, Education and Welfare as an intermediary, Kennedy invited the AMA officials to the White House just before the Administration started an all-out effort to get Congressional approval of legislation that would provide limited hospitalization and some other health care to older persons under social security.

The House Ways and Means Committee, which rejected the social security approach in 1960, is expected to vote on similar legislation again this year.

In its campaign for the King-Anderson bill, which utilizes the social security system, the Administration and its allies called rallies of aged persons, exerted pressures through a White House "lobby" office, published a propaganda pamphlet at taxpayers' expense and had federal employees drumming up support for the proposal.

Following the 45-minute White House session with Kennedy, Dr. Leonard W. Larson, Bismarck, N. D., AMA president, said the AMA representatives made clear that the great majority of the nation's physicians oppose the King-Anderson bill or similar legislation. Dr. Larson also said the Administration is wrong in its statements that such legislation will be approved by Congress.

"We have a very good line of communication with the grass roots and the support of the old people for the Administration plan is decreasing now that they realize what it will mean to them," Dr. Larson said.

Dr. Larson charged that the Kennedy Administration is "trying to create a bandwagon" for its medical care for the aged program. He said "the

propaganda indicates the Administration is not getting the support it needs for its bill, and we are convinced the trend is the other way."

In addition to Dr. Larson, AMA officials at the White House were: Dr. Hugh H. Hussey, Jr., Washington, D. C., chairman, AMA Board of Trustees; Dr. Percy E. Hopkins, Chicago, vice chairman, AMA Board of Trustees; Dr. Norman Welch, Boston, speaker, AMA House of Delegates; Dr. Edward R. Annis, Miami, Fla., chairman, AMA National Speakers Bureau; Dr. F. J. L. Blasingame, Chicago, AMA executive vice president, and Dr. Ernest B. Howard, Chicago, AMA assistant executive vice president.

Dr. Annis said the meeting "was an honest interchange of divergent views on the method of providing medical care for the senior citizens of our country." He said the AMA position was that when the government provided for people in need, this was "a proper manifestation of the Christian-Judaic consideration for fellow man."

But when the government provides for everyone under a system of forced contributions this amounts to socialized medicine, Dr. Annis said.

On other health matters, Kennedy expressed interest in the AMA-sponsored First National Congress on Mental Health this fall. He said he hoped to be able to accept an AMA invitation to address it. He also noted several legislative and other items in which there was substantial agreement between the AMA and the Administration, including aid for construction of medical schools and establishment of the health resources advisory committee.

Shortly after the White House meeting, Republican senators met and agreed to hold firm in support of the Kerr-Mills bill and against King-Anderson. They refused to endorse any substitute.

One of the prime tactics of the Administration has been to give the impression that the King-Anderson bill enjoys wide public support. However, congressional polls of more than 450,000 voters revealed just the opposite with increasing public opposition evident toward the disputed plan. Of 43 polls taken during the current Congress 28 showed strong popular sentiment against the bill. The latest 16 polls ran 12 to 4 against it.

The American Dental Association reiterated opposition to the King-Anderson bill. An editorial in the ADA Journal stated "participation in a government-sponsored program of health

care should be voluntary." ADA secretary Dr. Harold Hillenbrand called the bill "election time propaganda."

The campaign against the medical profession for its opposition to the King-Anderson bill has become "downright vicious," Rep. Don Short (R., N. D.) said.

"The distortions, untruths and half-truths that are making their rounds and being promulgated by various organizations in this country is astounding," he said in a Congressional Record statement. "Our fine physicians and dentists in this country are being portrayed as evil, money-grabbing monsters. Our medical associations are being portrayed in the same way. Nothing is ever said about the many sacrifices and the dedicated work of many physicians, dentists and surgeons."

* * * *

Meeting of the Arkansas Radiological Society

The Arkansas Radiological Society met in annual session during the Arkansas Medical Society meeting in Hot Springs, Arkansas at noon Tuesday, May 1, 1962. Dr. Joe Norton, Little Rock, President, presided. The guest speaker was Dr. Harvey White, Radiologist from the Children's Memorial Hospital, Chicago, who gave a talk concerning a Cinceroentgenographic Study of the Alimentary Tract of Children. The discussion was moderated by Dr. Howard Barnhard of the University of Arkansas in Little Rock. A film reading session followed this, utilizing Pediatric cases, moderated by Dr. White.

New officers were elected for the coming year and include:

President—Dr. Charles Anderson, 1108½ Poplar, Pine Bluff, Ark.

Vice President—Dr. Joe Norton, 5408 Centerwood Road, Little Rock, Ark.

Secretary-Treasurer—Dr. Harold Langston, 424 Midland, Little Rock, Ark.

Councilor to American College of Radiology—Dr. Ernest Mendelsohn, Holt-Krock Clinic, Fort Smith, Ark.

Alternate Councilor to American College of Radiology—Dr. Joe Calhoun, 5804 W. Markham St., Little Rock, Ark.

Mental Health Association Holds Annual Meeting

The Northwest Arkansas Mental Health Association held its annual meeting in the auditorium of the VA Hospital May 3.

Special speaker for the meeting was Dr. William G. Reese, a consultant at the VA Hospital in North Little Rock and Little Rock, secretary of the Southern Medical Association's section of Neurology and Psychiatry and vice president of the Southern Psychiatric Association. Dr. Reese selected as his topic "The Golden Years?—or the Age of Disillusionment?".

* * * *

League Issues First Nationwide Study of Practical Nursing Schools

"In 1960 there were 662 state approved schools of practical nursing in the United States. In 1950 there had been only about 150. In this ten-year period the number of yearly graduates from practical nursing programs increased from about 3,000 to over 16,000."

This statement introduces a new study, "Education for Practical Nursing, 1960," issued this week by the National League for Nursing, New York. It is the first nationwide study of the rapidly growing field of practical nursing education and the first major publication to be issued by the League's new Department of Practical Nursing Programs which was formed recently to provide a medium for the improvement of practical nursing education cooperatively with that of professional nursing.

The study attributes the "tremendous growth" of practical nursing education to "the encouragement and guidance of leaders of the nursing profession and the technical and financial assistance of the federal government." Since 1956 practical nursing education has been aided by federal vocational education funds administered through the U. S. Office of Education. Annual federal expenditures increased from \$800,000 in 1957 to \$2.8 million in 1960. In addition, many foundations and voluntary funds—among them the W. K. Kellogg Foundation, Kress Foundation, the Spaulding Council on Nursing Education, Inc., the Cunningham Drug, Rockefeller and Avalon foundations—have financed national and regional projects in this field.

Two agencies of the U. S. Department of Health, Education, and Welfare—the Office of Education and the Public Health Service—cooper-

ated with the League in studying the 1960 characteristics of 494 schools reporting in the survey. National statistics about curriculums, students, faculties, facilities, and costs in practical nursing schools are reported as a measuring device against which individual schools may compare their own practices in upgrading standards of education in this field.

Among the significant findings of the study are these:

As the number of licensed practical nurses has increased—64,831 in 1950; 245,000 in 1960—characteristics of the practical nursing student body have changed. The field now attracts students both younger and better educated than it formerly did. Two-thirds of the entering students in the 1959-60 classes were high school graduates, as opposed to less than half ten years ago. One-third of the entering students in 1959-60 were under 20 years of age, and the average age of students was 25. In 1950 the typical student was over 30.

As in all fields, practical nursing schools face the problem of insufficient adequately prepared faculty. There are at present 3,200 teachers in these schools, of whom 2,500 are professional registered nurses. Of these, 1,300 have bachelors degrees and 300 masters degrees.

Three-fourths of the practical nursing programs operating in 1960 were under the control of educational institutions or agencies, usually state or local boards of education as part of the public vocational education programs. The remaining 25 per cent of the programs were under the control of hospitals and other community agencies.

Total 1960 expenditures of all programs reporting was \$12 million; \$8.7 million was spent by programs operated by educational institutions and \$3.3 million by programs operated by hospitals and other community agencies. Median expenditure per student was \$530. The average charge to the student was \$105.

The study is available from the National League for Nursing, 10 Columbus Circle, New York 19, N. Y., at a cost of \$2.00 a copy.

Review copy of "Education for Practical Nursing, 1960" available upon request.

* * * *

The Month in Washington

Washington, D. C.—The American Medical Association challenged the Kennedy Administration on the accuracy and legality of its propaganda campaign for the King-Anderson bill.

Dr. F. J. L. Blasingame, executive vice president of the AMA wired Attorney General Robert Kennedy about a booklet issued by the Department of Health, Education and Welfare. Dr. Blasingame said:

"This booklet lobbies for the enactment of the King-Anderson bill. This bill would raise social security taxes to provide limited health services to aged beneficiaries, regardless of whether they need financial help.

"The Department of Health, Education and Welfare has used tax funds, collected from everyone, to propagandize for a bill which many people and many groups have vigorously opposed. Under law, the publishing of this kind of a booklet without Congressional authority is a criminal act, punishable by fine or imprisonment, or both, and removal from office."

AMA President Dr. Leonard W. Larson wrote President Kennedy correcting a misstatement the Chief Executive made at a news conference.

The President told his news conference that "the AMA was one of the chief opponents of the Social Security system in the 30's."

Dr. Larson pointed out to Mr. Kennedy that the American Medical Association had never opposed the Social Security system, either before or after its adoption.

"The Association," Dr. Larson's letter said, "testified before Congress on only one section of the Social Security legislation, the section concerning extension of public health services. It should be noted that the AMA testified in support of this section."

Dr. Blasingame also called on the Justice Department to stop Cabinet members using taxpayers' money for lobbying purposes and to launch an investigation of "improper" lobbying activities of employees of the Department of HEW.

Dr. Blasingame in a letter to Attorney General Robert Kennedy listed more than a dozen incidents which he said violated federal statutes prohibiting lobbying by federal employees and officials.

"Government employees," Dr. Blasingame said, "are being sent out as speakers, at public meetings to urge enactment of the Administration's bill. This, in our opinion, is a clear violation of Title 18, Section 1913 of the U. S. Code on crimes and criminal procedure which prohibits among other

things the use of 'personal services' for lobbying purposes."

Dr. Blasingame said that Secretary of Commerce Luther Hodges, Secretary of Labor Arthur Goldberg and Interior Secretary Stewart Udall were appearing at rallies concurrent with President Kennedy's appearance in Madison Square Garden in the Administration's campaign for the King-Anderson bill.

"We strongly protest the use of tax monies by these Cabinet members to lobby for a bill which is clearly not within the scope of their respective departments," Dr. Blasingame said. "I call on you to issue an injunction against this type of activity by these Cabinet members."

The AMA Executive Vice President also noted that between six and ten government employees "have been lobbying in the White House offices for several months" for the King-Anderson bill. He said the group occupying a four-room suite "has been writing television and radio scripts, drafting advertisements and helping with publicity releases for various organizations which are backing the King-Anderson bill."

Dr. Larson also urged that "the American people demand an honest accounting from the Department of Health, Education and Welfare on how much of their tax money the department is spending on lobbying for the King-Anderson bill."

"The people have a right to know how much of their tax money this federal agency is spending in lobbying for this piece of legislation," Dr. Larson said in a speech before the Academy of Medicine of Cincinnati.

Dr. Larson said also that the National Council of Senior Citizens should be required to register as a lobbyist.

"This organization was founded by former Congressman Aime Forand for the express purpose of lobbying for passage of the King-Anderson bill," Dr. Larson said.

In a statement, Dr. Larson cited contradictory statements by two prominent advocates of President Kennedy's health-care-for-the-aged bill—Ribicoff and Rep. Cecil R. King (D., Calif.).

"Mr. Ribicoff and Mr. King may be on the same team but they are in basic disagreement as to the extent of services social security should provide, and how much of an increase in taxes the public will tolerate to finance these services," Dr. Larson said.

Dr. Larson said: "This is what is happening. Secretary Ribicoff, in an effort to make the King-Anderson bill palatable to those fearing greater Federal taxes, is saying that the health care program will not be expanded because social security taxes have just about hit 10 per cent—his estimate of the saturation point.

"Meanwhile, Mr. King, in order to gain the support of those who believe in the 'Federal government playing the role of Santa Claus' is promising increased social security benefits in the future."

* * * *

The American Medical Association opposed legislation that would permit beneficiaries of the Federal Employees' Compensation Act to utilize services of chiropractors.

In a letter to the chairman of the Senate Subcommittee on Employees Compensation, Dr. F. J. L. Blasingame, AMA executive vice president, said:

"Chiropractic is a pseudo-science which is not based on scientific methods and, therefore, should be recognized as what it is—a theory of cultism. It is premised on the theory that human illness is all related to the spinal column. It holds that the nerves that emanate from the spinal cord become impinged or 'pinched' by the vertebrae, thereby causing malfunction and disease.

"As a result of this theory, chiropractors claim that disease and illness such as allergies, diabetes, heart trouble and tonsillitis, to name a few, can be cured by adjusting or manipulating the spinal column. Such a theory, of course, runs counter to the established facts of medical science. . . .

"Chiropractors are not educated or equipped by either background or training to diagnose human illness. This inability to render a diagnosis coupled with their pseudo-scientific method of treatment, when taken into consideration in connection with their vociferous stand against life-saving vaccines and wonder drugs, precludes that any consideration be given them."

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Med School Elects Officers

Neal A. Robinson of Rogers, who will be a senior medical student next year, has been elected president of the student body of the School of Medicine at the University of Arkansas Medical Center for the 1962-63 school year. Other officers are: Gary Williamson of Hot Springs, vice presi-

dent; Fred Brandon of Little Rock, secretary; and George Taylor of Sparkman, treasurer.

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Medical Center Graduates 121

Commencement exercises for graduating classes at the University of Arkansas Medical Center were observed June 10, at Robinson Auditorium, with Dr. Walter S. Wiggins, Secretary of the Council on Medical Education and Hospitals of the American Medical Association, giving the commencement address.

A total of 121 seniors in the various schools were awarded degrees. They included 74 from the School of Medicine, 14 from the School of Nursing, 28 from the School of Pharmacy, and 5 from the School of Medical Technology.

L. C. Carter of Stuttgart, Chairman of the University's Board of Trustees, conferred degrees while University President David W. Mullins presented diplomas.

The Oath of Hippocrates was administered to medical graduates by Dr. Charles R. Henry of Little Rock. The Reverend David E. Johnson of the Episcopal Church of the Good Shepherd, Little Rock, gave the invocation and benediction.

* * * *

Lewisville In Need of More Doctors

The Lewisville Chamber of Commerce, as well as other interested persons in Lewisville, have been making efforts to locate doctors for the City of Lewisville. Letters have been sent out to each of 32 1961 graduates of the University of Arkansas Medical School who finish their internship this year inviting them to investigate Lewisville as a possible location for practicing medicine.

THINGS  TO
COME

Course in Laryngology and Bronchoesophagology

Sept. 24 through Oct. 6, 1962

The Department of Otolaryngology, University of Illinois College of Medicine, will conduct a postgraduate course in Laryngology and Bronchoesophagology from September 24 through October

6, 1962, under the direction of Paul H. Holinger, M.D. Registration will be limited to fifteen physicians who will receive instruction by means of animal demonstrations and practice in bronchoscopy and esophagoscopy, diagnostic and surgical clinics, as well as didactic lectures. Interested registrants will please write directly to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

* * * *

The University of Texas Postgraduate School of Medicine and The National Cystic Fibrosis Research Foundation will co-sponsor a clinical symposium on "Chronic Pulmonary Diseases with Special Emphasis on Cystic Fibrosis," on October 12 and 13, 1962. The program will be held in the Auditorium of the Texas Children's Hospital in the Texas Medical Center, Houston, Texas.

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Kansas City Southwest Clinical Society

The Kansas City Southwest Clinical Society announces its fortieth annual fall clinical conference on October 1, 2, and 3, 1962 at the Hotel Muehlebach, Kansas City, Missouri. The conference will be acceptable for Category I postgraduate study credit by American Academy of General Practice (21¾ hours).

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Interstate Offers Varied Program for GPs

The 47th annual Scientific Assembly of Interstate Postgraduate Medical Association, to be held at the Palmer House, Chicago, October 1-4, offers 20½ hours of varied teaching (and A.A.G.P. Category II credit) for a registration fee of \$10. The program is especially suited to the needs of generalists, as all lectures, panels and clinics are closely related to medical problems familiar to the physician who does not devote his time to a single specialty. Those interested in full details of the program are urged to write for a brochure, by addressing a postal to N. A. Hill, M.D., Secretary, Interstate Postgraduate Medical Association, Box 1109, Madison 1, Wisconsin.

* * * *

West Virginia Academy to Hear Dr. Maumenee

Dr. Alfred E. Maumenee, Professor of Ophthalmology at Johns Hopkins University School of

Medicine, Baltimore, Maryland, will speak at the 95th Annual Meeting of the West Virginia State Medical Association August 23-25 and before the summer session of the West Virginia Academy of Ophthalmology and Otolaryngology on August 24. For further information contact Mr. William Lively, Executive Secretary, West Virginia State Medical Association, Box 1031, Charleston 24, West Virginia.



OBITUARY

Dr. William T. Lowe

DR. WILLIAM THOMAS LOWE, aged 77, a retired physician and surgeon, died in Pine Bluff on May 28, 1962.

Dr. Lowe was chief of staff for the Davis Hospital for a number of years and was past president of the Jefferson County Medical Society. He was a member of the state Medical Board of Examiners.

A graduate of Vanderbilt University, he interned at Poly Clinic in New York and began practice in 1909. He retired in 1950.

* * * *

Dr. J. H. Bohannon

DR. J. H. BOHANNON, age 82, Carroll County's oldest practitioner, died in Berryville May 18, 1962.

Dr. Bohannon graduated from Physicians and Surgeons College in Little Rock in 1910 and began his practice in Huntsville that year. He moved to Berryville in 1924 and practiced there until ill health forced his retirement in 1961.

He was a member of the Carroll County Medical Society, the American Medical Association, and the State Medical Association, and past president of the Carroll County Medical Association. He was also a prominent Berryville business leader.

Dr. W. R. Brooksher, Jr.

DR. W. R. BROOKSHER, JR., 29, was killed in an automobile accident on April 14, 1962. Dr. Brooksher, the son of Dr. W. R. Brooksher, Sr. of Fort Smith, was chief resident in medicine at the Uni-

versity Medical Center in Little Rock.

In addition to his parents, he is survived by his widow, Mrs. Lynda Sue Blucker Brooksher. At the time of his death he had been married one week.



PERSONAL AND NEWS ITEMS

Dermott Doctor Attacks King Anderson Bill

Dr. Major E. Smith of Dermott recently told a meeting of the Smackover Lions Club that "too many people who know better have been promoting the false idea that the King-Anderson medical care bill now pending in Congress is a form of insurance through which workers may provide medical care in their old age. He recommended "spelling out" how costly the program would be to young taxpayers and stated that "only when the people are aware of the specific details of the King-Anderson bill can they realistically decide whether they want such a program.

* * * *

Dr. Dalton Speaks to Camden Kiwanians

Dr. Perry Dalton recently was guest speaker at a meeting of the Camden Kiwanis Club. The subject of his talk was the controversial King-Anderson legislation. In his talk he urged club members to write their congressmen and voice their disapproval of the bill, for that has a great deal to do with the passage of the bill.

* * * *

Little Rock Doctor to Oppose Sen. Fulbright

A 43-year-old orthopedic surgeon from Little Rock, Dr. Kenneth G. Jones, has announced that he will run on the Republican ticket against Sen. J. W. Fulbright for United States Senator from Arkansas.

* * * *

Dr. Kirkley Talks to Lions

Dr. John Kirkley recently spoke before a meeting of the Jonesboro Lions Club at the Hotel

Noble. In his talk Dr. Kirkley advocated the Kerr-Mills bill and blasted the King-Anderson bill now pending in Congress.

* * * *

Dr. Echols and Dr. Ellis Named to Board of Abilities Unlimited

Dr. D. B. Echols and Dr. Jacob P. Ellis have been named to the Board of Directors of a new El Dorado organization, Abilities Unlimited, Inc. The object of the corporation is to provide employment, training, rehabilitation, and opportunities for personal growth for the disadvantaged, disabled, and handicapped.

* * * *

Dr. Martin to Begin Residency in Surgery

Dr. Damon G. H. Martin, who has been practicing medicine in Danville for the past four years, left June 1 to begin a residency in surgery at Winston-Salem, North Carolina on July 1.

* * * *

Brinkley Doctor to Build Rest Home for Marianna

Dr. John Miller of Brinkley is planning to build a new 80-bed rest home in Marianna this summer. At the present time there is only one rest home in the area of Marianna, Stuttgart, Augusta, McCrory, Forrest City and all the adjacent area, and it is the new Cla-Cliff 73-bed home just opened in Brinkley.

* * * *

Dr. Benafield to Join Staff of Conway Clinic

Dr. Robert Bryan Benafield joined the staff of the Conway Clinic July 1 and is associated

with Dr. Edwin L. Dunaway and Dr. Charles Archer. Dr. Benafield recently completed a year's internship at Arkansas Baptist Hospital in Little Rock. He will practice general medicine and surgery in Conway.

* * * *

Dr. Floyd Constructs New Building

Dr. G. J. Floyd has started construction on a new office building in Murfreesboro. The building, will house two doctors.

* * * *

Civitans Elect Dr. Echols

Dr. Don Echols of El Dorado was elected to the presidency of the local Civitan Club at a monthly business meeting April 27.

* * * *

Dr. Lee Moves to New Clinic

Dr. Willie J. Lee of Lewisville has recently moved into a new clinic. The new clinic was opened May 28.

* * * *

Dr. Glenn Elected to State Historical Association

Dr. H. V. Glenn of Stuttgart has been elected president of the Arkansas Historical Association at the concluding session of the twenty-first annual meeting in Batesville May 5.

* * * *

Dr. Hunter Moves Offices

Dr. Robert W. Hunter, a native of Little Rock, has moved his offices from Arkadelphia to Lewisville, where he will occupy the former offices of Dr. R. H. Harrison.

* * * *

Dr. Jay Speaks to Rotarians

Dr. Gilbert D. Jay III, West Memphis Physician and Surgeon, recently spoke to the West Memphis Rotary Club in a meeting at the Meadowbrook Country Club. He gave a discourse on the hospital as a public institution, with reference to the trend of hospitals in the United States and the particular situation of Crittenden Memorial Hospital.

* * * *

Dr. Bailey Elected

Dr. H. A. (Ted) Bailey, Jr. has recently been selected to become a member of the Triological Society. This organization is composed of ear, nose and throat physicians who have earned some special recognition in their field.

Physicians Get Distinguished Service Award

The Executive Council of the University of Arkansas Medical Center recently established a Distinguished Service Award to be presented each year at graduation exercises to a person or persons who have performed outstanding service to the medical center as volunteer faculty members.

The recipients of the award this year were Dr. H. Fay Jones, Dr. W. B. Grayson and Dr. Paul Mahoney. They were presented with a scroll, and a plaque bearing their names will be placed in the medical school.

* * * *

Dr. Vida Gordon Awarded Fellowship

Dr. Vida H. Gordon, Little Rock pediatrician and allergist, has been awarded a post-doctoral research fellowship in immunology and allergy at the Children's Hospital of Pittsburgh. She began a two-year leave of absence on July 1.

Dr. Gordon, whose office is at 2616 Kavanaugh has been limiting her practice to allergic diseases of children, and intends to investigate the basic mechanisms that create asthmatic attacks in the research project.

Dr. Gordon, chief of staff at the Arkansas Children's Hospital, also has been on the clinical teaching staff of University Medical Center since she came to Little Rock, and helped establish a full-time department of pediatrics at the medical center in 1947.

* * * *

Dr. Dinning Named Assistant Dean of Graduate School

Dr. James S. Dinning, professor and head of the Department of Biochemistry at the University Medical Center, has been named assistant dean of the Medical Center Graduate School, and will work toward expanding and improving the graduate program. Dr. Dinning, who will continue as department head, expressed the hope that the graduate program would encourage Arkansas students to remain in the state.

* * * *

Med Staff Hears Allergy Specialist

The medical staff at Arkansas Baptist Hospital recently heard a talk by Dr. John P. McGovern, chief of the allergy service at the Texas Children's Hospital at Houston, on "The Holistic Management of Allergy." Dr. McGovern is one of the country's top authorities in the field of children's allergies.

Dr. Creeman Elected By Cystic Fibrosis Group

Dr. Bill G. Creeman of Helena has been elected president of the Little Rock Chapter of the National Cystic Fibrosis Research Foundation. The group met recently at the University Medical Center in Little Rock.

Dr. Ted Knicker, director of the cystic fibrosis clinic being established at the Medical Center, told the group that the clinic would be designed to serve physicians all over the state.

Physicians may refer patients to the clinic for either diagnosis or therapeutic planning, Dr. Knicker said.

* * * *

Dr. Reed Recipient of Award

Dr. Lon E. Reed of Hot Springs was recently presented with a marble tablet, on which the Hippocratic Oath is inscribed, for his "outstanding service to the medical profession in Hot Springs, Arkansas and the Mid-South. The presentation was made by the Schering Corporation, a pharmaceutical manufacturer, at the opening day's session of a two-day meeting of the Memphis division. Dr. Reed is the only Arkansan to receive the coveted tablet.

* * * *

Dr. Harrel Speaks to Lions

Dr. J. A. Harrel, a Little Rock Pediatrician, recently discussed the need for a child guidance clinic in Pulaski County at a meeting of the Pulaski Heights Lions Club in Little Rock.

* * * *

Dr. Garner Opens Offices

Dr. William Garner recently opened offices for the general practice of medicine in the offices of the late Dr. W. E. Berry in Jonesboro.

Dr. Garner, a graduate of University of Tennessee School of Medicine, formerly practiced in Charleston, Mississippi, and since his discharge

from the Army in 1958, he has practiced in Senatobia, Mississippi.

* * * *

Dr. Hawley Purchases Building for Clinic

Dr. James W. Hawley has purchased the building on Van Buren Street formerly the Proctor Funeral Home in Stephens, and will occupy it as the Hawley Clinic.

He expects to occupy the building in two to three months when the remodeling work on it is completed.

* * * *

Dr. Duffy Speaks on Shiloh Battle

Dr. Carl Duffy, head of the department of microbiology of the University of Arkansas Medical School and a student of Civil War battles, spoke on the Battle of Shiloh at a recent meeting of the Pulaski County Historical Society at the Worthen Bank Community Hall in Little Rock.

* * * *

Dr. Robins Speaks to Lions

Dr. R. B. Robins of Camden recently was guest speaker at a meeting of the El Dorado Lions Club. The subject of his talk was "Medicine's Future."

* * * *

Dr. Logue Moves Office

Dr. Richard M. Logue announces the removal of his office to 601 North University, Little Rock, Arkansas.

* * * *

Dr. Goldstein Honored

Dr. Davis W. Goldstein, one of the founders of the Cooper Clinic in Fort Smith in 1920, was recently presented with a plaque in appreciation for fifty years of service as a dermatologist in the State of Arkansas. The plaque was presented at a meeting of the Arkansas State Dermatological Society in Little Rock.

2



PROCEEDINGS OF SOCIETIES

Medical Assistants Hold 8th Annual Convention

The 8th Annual Convention of the Arkansas State Medical Assistants Society was held April 14 and 15 in the Lafayette Hotel in Little Rock.

Guest speakers for the occasion were John M. Hundley, M.D., M.S.O., and Representative Dale Alford.

During the meeting Mrs. Bessie Kennedy of El Dorado became president of the Arkansas State Medical Assistant's Association. Other new officers are: Mrs. Mildred Ruck of Little Rock, president-elect; Mrs. Faye Evans of El Dorado,

secretary; and Mrs. Phyllis Walden of Newport, treasurer.

* * * *

Jackson County Medical Assistants Have Banquet

The Jackson County Medical Assistants Society celebrated its first anniversary with a banquet May 15 in Newport. The members, employers and their wives were special guests.

Ray Reynolds, a representative of Blue Cross-Blue Shield, spoke to the group on "Blue Cross-Blue Shield—their relationship with the physician."



NEW MEMBERS

Sebastian County Medical Society announces that DR. WILLIAM G. LOCKHART has been added to its roster of members. A native of Little Rock, he received his preliminary education at Arkansas A. & M. College at Monticello, Arkansas. His M.D. degree was received from the University of Arkansas Medical School in 1950. He practiced in Cleveland, Ohio, from 1958 until 1959; in St. Joseph, Missouri, from 1959 until 1962. Dr. Lockhart's specialty is neurological surgery and his office is located at 1500 Dodson Avenue, Fort Smith, Arkansas.

DR. WILLIAM L. GARNER has been accepted as a member of Craighead-Poinsett County Medical Society. A native of Memphis, Tennessee, Dr. Garner received his preliminary education from the University of Mississippi. His M.D. degree was received from the University of Tennessee Medical School in 1953. He practiced in Charleston, Mississippi, until 1955; in the U. S. Army from 1955 until 1957; in Senatobia, Mississippi, from 1957 until 1962. Dr. Garner's office is located at 814 Cobb in Jonesboro, Arkansas.

* * * *

A new member of Washington County Medical Society is DR. PAUL K. HEERWAGEN, JR. He is a native of Fayetteville and his preliminary education was obtained from the University of Arkansas located at Fayetteville. His M.D. degree was received from the University of Arkansas in 1952. Dr. Heerwagen practiced in Collinsville, Oklahoma, from 1953 until 1958; in Tulsa, Oklahoma, from 1958 until 1959; Collinsville, Oklahoma, from 1959 until 1960. His office is located at the corner of Block and Dickson in Fayetteville, Arkansas.

COMMITTEES

Arkansas Medical Society 1962 - 1963

Committee On Cancer Control

	Term Expires
Charles E. Tommey, El Dorado	1963
Wm. B. Harrell, Texarkana	1963
Bill Dave Stewart, Little Rock, <i>Chairman</i>	1964
Holden C. McCraney, Fort Smith	1965
Howard S. Stern, Pine Bluff	1965
Martin Eisele, Hot Springs	1965

Committee On Medical Legislation

Elvin Shuffield, Little Rock, <i>Chairman</i>	1963
Karlton Kemp, Texarkana	1963
T. Duel Brown, Little Rock	1964
Charles G. Swingle, Marked Tree	1964
H. C. Barnett, Jonesboro	1964
J. P. Ellis, El Dorado	1965
Morriss M. Henry, Fayetteville	1965
John W. Smith, Little Rock	1965

Committee On Public Health (Rural Health)

Ben N. Saltzman, Mountain Home, <i>Chairman</i>	1963
O. J. T. Johnston, Batesville	1963
George F. Wynne, Warren	1964
Edgar J. Easley, Little Rock	1964
Joe W. Reid, Arkadelphia	1965
Dwight Gray, Marianna	1965

Sub-Committee On Maternal And Child Welfare

J. Travis Crews, Little Rock	1963
Thomas E. Townsend, Pine Bluff, <i>Chairman</i>	1964
A. K. Busby, Monticello	1965

Committee On Medical Education

W. H. Calaway, Batesville	1963
Euclid M. Smith, Hot Springs	1963
C. C. Long, Ozark, <i>Chairman</i>	1964
Calvin Dillaha, Little Rock	1964
Wm. R. Mashburn, Hot Springs	1965
Charles Hesterly, Prescott	1965

Sub-Committee On Postgraduate Education

Willis E. Brown, Little Rock, <i>Chairman</i>	1963
Albert R. Hammon, Harrison	1964
Solon McGaughey, Paragould	1965

Committee On Hospitals

Paul Gray, Batesville	1963
William L. Davis, Searcy	1963
Rodger Dickinson, DeQueen	1964
Amail Chudy, North Little Rock, <i>Chairman</i>	1964
John Price, Monticello	1965
John V. Busby, Little Rock	1965

Sub-Committee On Liaison With Blue Cross-Blue Shield

A. S. Koenig, Fort Smith, <i>Chairman</i>	1963
Henry Hearnberger, Stephens	1963
John Laurens, Little Rock	1964
Thomas E. Townsend, Pine Bluff	1964
Joseph A. Buchman, Little Rock	1965
Thomas M. Durham, Jr., Hot Springs	1965

Committee On Public Relations

A. E. Andrews, Paragould	1963
Jimmie E. Lytle, Batesville	1963
John McC. Smith, Little Rock, <i>Chairman</i>	1964
V. Bryan Perry, Pine Bluff	1964

Lee Parker, Jr., McGehee	Term Expires 1965
Karlton Kemp, Texarkana	1965

Sub-Committee On Industrial Health

E. Frank Reed, Jr., Pine Bluff	1963
Wright Hawkins, Fort Smith	1963
John G. Watkins, Jr., Little Rock	1964
Jack W. Kennedy, Arkadelphia	1964
John W. Cole, Malvern	1965
James Guthrie, Camden, <i>Chairman</i>	1965

Sub-Committee On Tuberculosis

Harley C. Darnall, Fort Smith	1963
Hugh A. Browne, Alexander	1963
Richard V. Ebert, Little Rock	1964
Sanford C. Monroe, Pine Bluff, <i>Chairman</i>	1964
Ben N. Saltzman, Mountain Home	1965
William O. Arnold, Hot Springs	1965

Sub-Committee On Mental Health

Wm. Payton Kolb, Little Rock	1963
Joe F. Rushton, Magnolia	1963
W. O. Young, Little Rock, <i>Chairman</i>	1964
Henry M. Sims, Fort Smith	1964
George W. Jackson, Little Rock	1965
John H. Delamore, Fordyce	1965

Sub-Committee On Liaison With The State Board Of Health

Hugh R. Edwards, Searcy	1963
Harold B. Hawley, Little Rock	1964
C. Lewis Hyatt, Monticello, <i>Chairman</i>	1965

Polio Advisory Sub-Committee

B. P. Briggs, Little Rock	1963
Thomas E. Townsend, Pine Bluff	1963
G. Max Thorn, North Little Rock	1964
Eli Gary, Arkadelphia	1964
Henry B. Rogers, El Dorado	1965
Roger B. Bost, Fort Smith, <i>Chairman</i>	1965

Sub-Committee On State Health And Medical Resources For Civil Defense

Wm. C. Hensley, Charleston	1963
Keller Lieblong, Conway	1964

Sub-Committee On Liaison With Auxiliary

H. King Wade, Jr., Hot Springs	1963
Frank Padberg, Little Rock, <i>Chairman</i>	1963
Wright Hawkins, Fort Smith	1963
Joseph A. Norton, Little Rock	1963
Charles A. Taylor, Batesville	1963

Advisory Committee To The Medical Assistants Society

James M. Kolb, Clarksville	1963
Kenneth R. Duzan, El Dorado, <i>Chairman</i>	1964
H. King Wade, Jr., Hot Springs	1965

Committee On Veterans Administration Affairs

John D. Ashley, Newport	1963
A. J. Forestiere, Harrisburg	1964
Garland D. Murphy, El Dorado, <i>Chairman</i>	1965

Committee On Insurance

L. E. Drewrey, Camden	1963
Guy Farris, Little Rock	1963
Thomas D. Honeycutt, Little Rock, <i>Chairman</i>	1964
J. F. Kelsey, Fort Smith	1964
Curtis Clark, Sheridan	1965
Stanley Applegate, Springdale	1965

	Term Expires
Committee On Arrangements For Annual Session	
Bill Dave Stewart, Little Rock	1963
Guy Farris, Little Rock, <i>Chairman</i>	1963
Walter H. O'Neal, Little Rock	1963
Wm. Martin Eisele, Hot Springs	1964
H. King Wade, Jr., Hot Springs	1964
W. R. Lee, Hot Springs	1964
Joe Verser, Harrisburg	1965
Ralph A. Downs, Fort Smith	1965
James R. Pierce, Pine Bluff	1965
Committee On Aging	
James M. Kolb, Clarksville, <i>Chairman</i>	1963
L. E. Drewrey, Camden	1963
John McC. Smith, Little Rock	1964
Ben N. Saltzman, Mountain Home	1964
Lon E. Reed, Hot Springs	1965
Wm. H. Mock, Prairie Grove	1965
Committee On Traffic Safety	
Hugh R. Edwards, Searcy	1963
Richard Logue, Little Rock	1963
James G. Stuckey, Little Rock	1963
J. B. Wharton, Jr., El Dorado	1963
E. Frank Reed, Jr., Pine Bluff, <i>Chairman</i>	1964
Henry V. Kirby, Harrison	1964
Wm. S. Orr, Little Rock	1964
Archie Hewett, Fort Smith	1964
Stuart McConkie, Hot Springs	1965
Sub-Committee On Physical Fitness And School Health	
Samuel B. Phillips, Little Rock	1963
Earle D. McKelvey, Paragould	1964
J. Clyde Hart, Jr., Pine Bluff, <i>Chairman</i>	1965
Liaison Committee With Vocational Rehabilitation	
Noah B. Kersh, Malvern	1963
Marion H. Wilmoth, Nashville	1963
Robert H. Atkinson, Hot Springs, <i>Chairman</i>	1963
James W. Hawley, Camden	1964
Elvin Shuffield, Little Rock	1964
Robert Watson, Little Rock	1964
Thomas M. Durham, Hot Springs	1965
Ralph A. Downs, Fort Smith	1965
Grover D. Poole, Jonesboro	1965
Committee On Constitutional Revision (Council Committee)	
Louis K. Hundley, Pine Bluff, <i>Chairman</i>	
H. W. Thomas, Dermott	
John M. Hundley, Little Rock	
W. J. Butt, Fayetteville	
H. King Wade, Jr., Hot Springs	
Budget Committee (Council Committee)	
W. R. Brooksher, Fort Smith, <i>Chairman</i>	
Louis K. Hundley, Pine Bluff	
Ben N. Saltzman, Mountain Home	
Senior Medical Day Committee (Council Committee)	
Joseph A. Norton, Little Rock, <i>Chairman</i>	
Calvin R. Simmons, Pine Bluff	
Wayne P. Jones, Berryville	
Special Fee Committee (Council Committee)	
Louis K. Hundley, Pine Bluff, <i>Chairman</i>	
James M. Kolb, Clarksville	

J. J. Monfort, Batesville
Jerome Levy, Little Rock
Charles Reid, Pine Bluff

Hospital-Insurance-Physician Committee (Council Committee)

L. E. Drewrey, Camden
Guy Farris, Little Rock
Thomas D. Honeycutt, Little Rock

Sub-Committee On Liaison With The Nursing Profession (Council Committee)

Hoyt Choate, Little Rock, *Chairman*
Hugh R. Edwards, Searcy
W. E. Morris, Little Rock

Liaison Committee With State Welfare Department (Council Committee)

H. King Wade, Jr., Hot Springs
Elvin Shuffield, Little Rock
Joe Verser, Harrisburg
H. W. Thomas, Dermott

ANSWER—Electrocardiogram of the Month

RATE: Variable, approximately 60 RHYTHM: Sinus PR: Variable, prolonged QRS: .16 sec. QT: ___ sec.

INTERPRETATION: Abnormal. Low voltage P waves with variable prolongation P-R interval and of QRS. Changes suggest severe hyperkalemia.

COMMENT:

This very elderly patient was admitted critically ill with a history of probable previous attacks of pyelonephritis and mental confusion. The laboratory examinations disclosed rising blood urea nitrogen and the first potassium level reported was 7.4. The tracing shows changes frequently found with marked hyperkalemia associated with terminal uremia; the changes are those of marked widening of the QRS and later disappearance of P waves.

ANSWER—What Is Your Diagnosis?

12 YEAR OLD COLORED MALE

Palpable abdominal mass. NPN 29mgm.%. Occasional white blood cells per low power field on urine sediment examination.

ANSWER—Congenital polycystic kidneys.

X-RAY FEATURES—A film taken after injection of intravenous contrast material and insufflation of air in the retroperitoneal space show very large rather lobulated kidneys surrounded by air. Their long axes are perpendicular rather than lying along the axis of the psoas shadow. The collecting structures are stretched and show multiple, rounded, smooth impressions causing general elongation and distortion of the calyces and infundibula.

RESOLUTIONS



Resolution read and approved at the June 5, 1962, meeting of the Pulaski County Medical Society.

RESOLUTION

Whereas, in order to express themselves on the recent loss of Dr. J. B. Woods, the members of the Pulaski County Medical Society do pause with respect, and

Whereas, Dr. Woods was for a number of years a member of our Society and his contribution to the health and well-being of many of the persons in this community will be long remembered and appreciated, and

Whereas, he was held in high esteem by his associates, his patients, and his church, *Therefore*

Be It Resolved that a copy of this resolution be sent to his wife, and that we shall cause a copy of this resolution to be published in the Journal of the Arkansas Medical Society,

Be It Further Resolved that a copy of this resolution be inserted into the Pulaski County Medical Society records.

By Action of the Memorials Committee
Pulaski County Medical Society

Carl Wenger, M.D., Chairman

Read and approved.

* * * *

Resolution read and approved at the June 5, 1962, meeting of the Pulaski County Medical Society.

RESOLUTION

Whereas, God in his infinite wisdom has seen fit to take from this life Dr. George D. Thompson, and

Whereas, Dr. Thompson was a staunch and participating member of his church, a kind and devoted husband and father, and

Whereas, Dr. Thompson served the people of this community in the practice of medicine and other endeavors with great skill, and

Whereas, Dr. Thompson was highly respected by those of us closely associated with him in the practice of medicine, and

Whereas, Dr. Thompson's many devoted friends and patients will long remember the excellent quality and character of his friendship and services, and

Whereas, many people of many types and conditions will miss him and regret his passing, *therefore*

Be it resolved, by the Pulaski County Medical Society, of which Dr. Thompson was a member for 46 years, that we are sorrowed by his departure,

That we extend our deepest sympathy to his children and his many friends,

That we shall forward a copy of this resolution to his family,

That we shall incorporate this resolution in the minutes of the Society, and

That we shall cause the resolution to be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
Pulaski County Medical Society

Carl Wenger, M.D., Chairman

Read and approved.



BOOK REVIEWS

TREATMENT OF INJURIES TO ATHLETES, Edited by Don H. O'Donoghue, M. D., Professor of Orthopedic Surgery, University of Oklahoma Medical School, Oklahoma City, Oklahoma, First Edition, published by W. B. Saunders Company, Philadelphia and London, 1962, Illustrated.

This text book discusses injuries which occur in athletics and is principally an orthopedic text book. It does not discuss chest injuries, abdominal injuries or head injuries. It does not contain any information which might not be readily available in a text book of orthopedics. It is well illustrated; it is well written. Its niche in medical literature is questionable. This does not in any sense mean that the text book as it is has not been well prepared, but it does question its purpose. All the information contained in the text is authoritative. The book has a very limited scope and is probably not of interest to the average practitioner.

MEDICAL STATE BOARD QUESTIONS AND ANSWERS, Edited by Harrison F. Flippin, M. D., Clinical Professor of Medicine, The Graduate School of Medicine, The University of Pennsylvania, Tenth Edition, published by W. B. Saunders Company, Philadelphia and London, 1962.

by
the
book



PRO-BANTHINE®

(brand of propantheline bromide)

G. D. SEARLE & CO., CHICAGO 80, ILLINOIS

Research in the Service of Medicine

Principally the reviewer is against books which prepare one for State Board Examinations. However, in light of the questions currently asked on some State Board Examinations, it doesn't seem illogical to have a text which might give a prospective examinee a series of questions which might be similar to the State Board type of examination.

Doctor Flippin's book is well-written and has an excellent index. It is divided according to the systems of the body. Each chapter gives a series of questions and appropriate answers to these questions immediately following the question.

No doubt the best preparation for the State Board Examination is proper preparation in a good medical school and hospital internship. If the student wants additional help from a book of Medical State Board Examination Questions and Answers, this text is recommended as adequate.

PEDIATRIC DIAGNOSIS, Second Edition, by Morris Green, M. D., Associate Professor of Pediatrics, Indiana University School of Medicine; Director, Kiwanis Diagnostic and Outpatient Center, James Whitcomb Riley Hospital for Children, and Julius B. Richmond, M. D., Professor and Chairman of the Department of Pediatrics, State University of New York College of Medicine at Syracuse, pp. 541, published by W. B. Saunders Company, Philadelphia and London, 1962.

This textbook of pediatric diagnosis is written in outline form and discusses the body from a point of view of the different anatomic locations. Signs and symptoms are then discussed. There is also a portion on health supervision. The material contained in the text is unquestionably authoritative and well written in rather a terse style. The reviewer does not endorse this approach to pediatrics, either in training or practice. The exact niche for which this book is fitted is a little difficult to understand. Brief references to the literature are included in the text. This book is not recommended except for supplemental use as a ward reference in a pediatric-teaching hospital. AK

PSYCHOLOGICAL DEVELOPMENT IN HEALTH AND DISEASE by George L. Engel, M. D., Professor of Psychiatry and Associate Professor of Medicine, The University of Rochester School of Medicine and Dentistry, pp. 435, published by W. B. Saunders Company, Philadelphia and London, 1962.

This is an interesting book and very easy to read. It does not include any material which probably has not already been well known to the practicing physician. With the current emphasis on psychology and psychiatric diseases, this book is worth reading as a supplemental text but not as an essential text. AK

TEXTBOOK OF OPHTHALMOLOGY by Francis Heed Adler, M. D., Emeritus Professor of Ophthalmology, University of Pennsylvania Medical School; Consulting Surgeon, Wills Eye, Philadelphia General, and Children's Hospitals of Philadelphia, Seventh Edition, pp. 560, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1962.

This Textbook of Ophthalmology is designed principally for medical students and general practitioners, according to the author. It is well written and easy to read. There are a very large number of illustrations. The book does not include references. This would be a valuable asset but is not essential. The text is 560 pages and it would be desirable to shorten it, if possible; however, considering the amount of material contained in it, it would be difficult. The book is recommended as a good textbook for medical students and general practitioners. AK

W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing elsewhere in this issue:

KLINE AND LEHMANN—HANDBOOK OF PSYCHIATRIC TREATMENT IN MEDICAL PRACTICE.

Tells the non-specialist which psychiatric patients he should and should not treat—why he should treat them—and exactly how to manage these patients.

FINNESON—DIAGNOSIS AND MANAGEMENT OF PAIN SYNDROMES.

Step-by-step management of commonly met problems of pain—ranging from headache to intractable pain due to cancer.

WILLIAMSON—OFFICE PROCEDURES.

Step-by-step instructions with over 1,000 illustrations on how to perform office techniques—ranging from removal of excess cerumen to cauterization of the cervix.

* * * *

Contributors to the American Medical Association Education Foundation for the month of May,

1962:

Arkansas County Woman's Auxiliary	\$ 71.43
Dr. James W. Branch, Hope	5.00
Dr. John M. Boyce, Prairie Grove	10.00
Boone County Woman's Auxiliary	5.00
Dr. LeMon Clark, Fayetteville	25.00
Clark County Woman's Auxiliary	5.00
Dr. Milton Deneke, West Memphis	25.00
Dr. Morris A. Jackson, Little Rock	10.00
Robert A. Koch, Hot Springs	5.00
Lawrence County Woman's Auxiliary	3.55
Dr. Ruth E. Lesh, Fayetteville	10.00
Dr. Ross Maynard, Pine Bluff	25.00
Dr. J. P. Price, Jr., Monticello	10.00
Pulaski County Woman's Auxiliary	272.60
Pulaski County Woman's Auxiliary	38.00
Dr. Winston K. Shorey, Little Rock	10.00
Union County Woman's Auxiliary	5.00
Dr. John H. Wesson, Nashville	5.00
Dr. Joseph P. Ward, Little Rock	5.00
	<hr/>
	\$ 545.58

THE JOURNAL OF THE Arkansas MEDICAL SOCIETY

Vol. 59 No. 4

September, 1962

FORT

U.C. MEDICAL CENTER LIBRARY

OCT 4 1962

San Francisco, 22



... even though surrounded by allergens. Co-Pyronil® provides smooth, continuous control of allergic symptoms—relief in minutes for hours, with virtually no side-effects. And there is a dosage form for every allergic patient.

Pulvules®

Suspension

Pediatric Pulvules

Co-Pyronil®

(pyrrobutamine compound, Lilly)

Each Pulvule contains Pyronil® (pyrrobutamine, Lilly), 15 mg.; Histadyl® (methapyrilene hydrochloride, Lilly), 25 mg.; and Clopane® Hydrochloride (cyclopentamine hydrochloride, Lilly), 12.5 mg. Each pediatric Pulvule or 5-cc. teaspoonful of the suspension contains half of the above quantities. This is a reminder advertisement. For adequate information for use, please consult manufacturer's literature. Eli Lilly and Company, Indianapolis 6, Indiana.

258015

Lilly

"Alone I walk the peopled city..."



DILANTIN®

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TOTAL PROSTHETIC RECONSTRUCTION OF THE AORTIC VALVE

Clinical Experiences

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*Read at the meeting of the Arkansas Academy of
General Practice, Little Rock, Arkansas,*

October 11, 1961

EXPERIENCE AT THE MAYO Clinic with total reconstruction of the aortic valve for aortic insufficiency with a single unit type of prosthesis will be reviewed. Fifteen such operations have been performed; the first was done in August, 1960, and the last that I am including in this review, in mid-May, 1961.

The operations previously employed for the treatment of predominant aortic insufficiency are a miscellaneous group, such as suturing the leaflets together, attempting to support leaflets at their commissures, suturing patches of prosthetic material to a single leading edge of the valve, and suturing perforations in leaflets. The classic bicuspidization technic, whereby the non-coronary leaflet and the adjacent aortic sinus and wall are excised also has been employed. Replacement of single or multiple leaflets with single-cusp prosthesis has been appropriate in a few instances, and total prosthetic reconstruction by a technic previously described completes the list.

Surgical treatment of aortic insufficiency at the Mayo Clinic was begun in 1958 (table 1), and as experience has progressed, we tended to shift away from improvised methods and away from the bicuspidization toward prosthetic reconstruction. Thus, of the 45 patients operated on for aortic insufficiency to date, a third have been treated by total prosthetic reconstruction. The majority of these cases have been in our recent

experience. In addition to these 45 patients operated on for predominant aortic insufficiency, 116 patients have undergone open-heart operations for relief of calcific aortic stenosis with or without mild insufficiency at the Mayo Clinic.

The Operation

In the great majority of patients aortic insufficiency results from shortening and deformity of each of the leaflets of the valve, and, therefore, total prosthetic reconstruction of the aortic valve is required. In many instances of primarily incompetent aortic valves, destruction and deform-

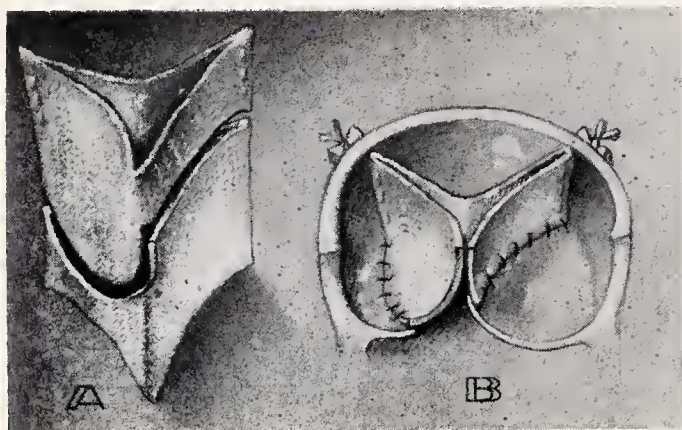


ity of the valve are by no means complete, and excision of such usable portions of natural leaflet tissue can be undertaken only with reluctance. Our scheme in this situation is to restore function to the valve by adding substance to the already existing functioning leaflet tissue.

The prosthesis is constructed from a simple tube of closely knit Teflon cloth. The tubes



are made in various sizes and can be made into a bicuspid or tricuspid form.* The lower margins of the prosthesis can be fashioned at operation to suit the specific requirements of that valve, as shown for the bicuspid valve in figure 1. The tricuspid valve is pre-shaped in that commissures are stitched into one end of the tube prior to operation, but again the lower ends are fashioned, as indicated, at the operating table (fig. 2). The lower margins of the prosthesis are then sutured



to the superior margins of the original leaflets as illustrated in figure 3.

Results

Of the 15 patients undergoing total prosthetic reconstruction of the aortic valve for predominant aortic insufficiency in the period, six succumbed within 16 hours after surgery (table 2). Each of these had had severe aortic insufficiency before operation as demonstrated by a widened pulse pressure, and each was in the late stages of the disease. Four of these patients died on the operating table after the intracardiac procedure was completed: two from apparent acute myocardial failure, and two apparently from failure

of the valve to function. Now it is believed that the prostheses used in these two cases were too small and, therefore, failed to close completely during diastole. One patient died 16 hours after operation. An attempt was made initially to repair the valve by replacement of a single leaflet, but this had to be followed by total prosthetic replacement of the valve. The prolonged perfusion and pulmonary engorgement required for the entire operation probably account for this death. The final patient had severe coronary arterial disease, with an old left ventricular infarct and a mural thrombus, which had not been detected preoperatively.

The nine patients who survived the first 16 hours after operation are still living and all have obtained satisfactory relief of their aortic insufficiency (table 3). Each of these nine patients was suffering from far advanced cardiac disability, only one could be classified as having heart disease of less severe than class III (New York Heart Association classification). All patients had severely widened pulse pressures, and the one patient having the least evidence of aortic insufficiency also had significant disease of the mitral and tricuspid valves which was corrected at the time of operation.

Each of the nine patients now has been followed from 5 to 10 months and each is completely free of cardiac disability or has symptoms only on strenuous exertion. Each of them is fully employed and most of them are not taking any medicaments. The only significant illnesses in the follow-up period have been transient anemia in two patients and short episodes of chills and fever in one patient whose blood cultures have been sterile on each occasion and who has been free from these episodes for the past month. The blood pressure at the time of dismissal from the clinic was markedly improved over the preoperative status in each patient and had declined to essentially normal limits, the highest pressure then being 165 mm. of mercury systolic and 80 mm. diastolic. The blood pressure at the time of follow-up examination was essentially identical to blood pressure at dismissal in each instance. A diastolic murmur was audible at the time of the follow-up examination in four of the patients. Subacute bacterial endocarditis has not developed in this series.

The average time of perfusion for the entire series of 15 operations was 133 minutes (2 hours

*The Teflon tubes have been generously provided by U. S. Catheter and Instrument Company, Glens Falls, New York.

and 13 minutes). The longest perfusion in the series was used for a 38-year-old man with aortic insufficiency, mitral insufficiency and tricuspid insufficiency. The mitral valve was repaired by replacement of the posterior mitral leaflet, and the tricuspid valve was repaired by tricuspid anuloplasty. The repair of the three valves required a total perfusion time of 3 hours and 20 minutes. This patient's recovery was uneventful except for some transient bronchitis and dyspnea.

Relief of aortic insufficiency has resulted in reduction of heart size, accompanied by corresponding electrocardiographic evidence of a reduction of left ventricular overload. Absence of a diastolic murmur in several of these patients has been confirmed by phonocardiography.

Comment

This report has involved our earliest experience with total prosthetic reconstruction of the aortic valve, thus allowing evaluation of these patients for as long as 10 months for follow-up. The immediate operative mortality for this initial experience has been higher than desirable, but perhaps not higher than could be anticipated for a new operative technic used on a group of severely disabled patients late in the stage of their heart disease. It is most encouraging that all patients who survived the first 16 hours of operation have gone

on to obtain and maintain satisfactory aortic valve function. The operative mortality for this operation in 1961 has fallen to approximately 15 per cent.

Summary

Aortic insufficiency is taking its place beside the ever increasing group of heart conditions which the cardiac surgeon can treat with confidence. Recent experience has reduced operative mortality to acceptable levels. Follow-up study of patients after total prosthetic reconstruction of the aortic valve indicates continued excellent function from the prosthesis.

Table 1

Repair of Aortic Insufficiency at the Mayo Clinic

Year	Im- proved methods	Bicuspid- ization	Cusp re- placement (single or multiple)	Total prosthetic recon- struction	Total
1958	1	3			4
1959	3	4			7
1960	11	3	1	6	21
1961 (first half)	1		3	9	13
Total	16	10	4	15	45

Table 2

Nonsurvivors After Total Prosthetic Reconstruction of the Aortic Valve

Age, yr., and sex	Preoperative condition		Other valves repaired	Death	
	N. Y. Heart Assn. classification	Blood Pressure mm. Hg		Time after operation	Cause
28 M	IV	190/20-0	—	16 hr.	Error in surgical judgment; 3 hr. 20 min. perfusion
28 F	III	130/50	Mitral	On table	Acute myocardial failure
38 M	IV	140/35-0	—	On table	Valve failure; severe aortic insufficiency
65 M	IV	150/50-0	—	On table	Acute myocardial failure
33 M	III	170/40	Mitral	On table	Valve failure; residual aortic and mitral insufficiency
63 M	IV	165/30	—	10 hr.	Coronary artery disease; old left ventricular infarct and mural thrombus

TOTAL PROSTHETIC RECONSTRUCTION OF THE AORTIC VALVE: CLINICAL EXPERIENCES

Table 3

Survivors After Total Prosthetic Reconstruction of the Aortic Valve

Preoperative condition				Postoperative					
Age, yr., and sex	N. Y. Heart Assn. classification	Blood pressure, mm. Hg	Other valves repaired	After operation, mo.	N. Y. Heart Association classification	Working	Blood pressure, mm. Hg		Aortic diastolic murmur
							on dismissal	Late	
38 M	III	128/68	Mitral and tricuspid	10	I	Yes	120/80	132/74	+
59 M	IV	180/68	—	10	II	Yes	120/66	?	0
47 M	II	140/30-0	—	8	I	Yes	140/76	142/74	+
30 F	III	120/60-0	Mitral	7	II	Housewife	110/60	110/60	++
37 M	IV	140/42	Mitral	7	I	Prev. stroke	120/65	118/82	0
18 M	IV	142/30-0	Mitral	6	II	Yes	165/80	160/70	0
36 M	III	140/45	—	5	I	Yes	116/90	118/88	0
40 M	III	140/40-0	—	5	I	Yes	120/80	130/82	0
46 M	IV	160/20-0	—	5	II	Yes	106/56	115/60	++

LEGENDS

Fig. 1. Teflon cloth tube, as it is fashioned at the operating table to form a bicuspid aortic valve prosthesis.

Fig. 2. Teflon cloth tube, partially fashioned to form a tricuspid aortic valve prosthesis.

Fig. 3. *A* and *B*. The method of shaping the tricuspid prosthesis to restore appropriate length to each of the natural leaflets and the method of suturing the prosthesis to their free margins.

SELECTION FOR OPERATION OF PATIENTS WITH CONGENITAL HEART DISEASE

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*Read at the meeting of the
Arkansas Academy of General Practice,
Little Rock, Arkansas, October 11, 1961*

DURING THE PAST SEVERAL years considerable experience has been gained in the repair of various intracardiac and extracardiac congenital cardiovascular anomalies, and since the development of extracorporeal circulation this experience has been enriched in the repair of ventricular septal defect either as an isolated lesion or within the framework of tetralogy of Fallot. As yet no hard and fast rules govern the selection of patients for operation, and the criteria differ from one institution to another depending largely on the skill and degree of success obtained by the operating team. It is the purpose of this paper to review the criteria used by the pediatric cardiologists and the cardiovascular surgeons at the Mayo Clinic in deciding which patients with congenital heart disease will be subjected to corrective surgery and because of current interest considerably more detail will be paid to ventricular septal defects than to other conditions.

Although almost 2,000 open heart operations have been performed at the Mayo Clinic and although general technics have been fairly well standardized, minor improvements are continually being made in the operating room and in the preoperative and postoperative care of patients. Surgical results, therefore, are improving steadily and patients who are considered high risks at present may well be treated with a much greater chance of success during the next few years.

In the consideration of any patient for operation we at the clinic still follow the routine of a complete history and physical examination to-

gether with laboratory studies including roentgenograms of the thorax, electrocardiogram, and hemogram for each patient. Then, if any questions remain concerning diagnosis or operability, cardiac catheterization and angiocardiology may be necessary.

Ventricular Septal Defect

Four main groups of patients with isolated ventricular septal defect may undergo operative repair: (1) those with congestive failure or severe retardation of growth secondary to large left-to-right shunts for whom closure of the shunt will correct the immediate problem; (2) those with moderate to large left-to-right shunts who are in no immediate danger but may have moderate limitation in their physical activities and who presumably may have a pulmonary vascular obstruction syndrome in the future; (3) those with small left-to-right shunts and normal pulmonary pressures, and (4) those with severe pulmonary vascular obstruction who still have a dominant left-to-right shunt and for whom it is feared that undue delay in surgical repair may lead to such a degree of pulmonary vascular disease that corrective operation will not be possible.

Group 1.—This group of patients constitutes a comparatively small percentage of the over-all number. They are usually infants between the ages of 3 months and 2 years. They are scrawny, underdeveloped and undernourished; they frequently have a history of repeated respiratory infections and are often desperately ill with severe congestive failure. Until 3 years ago the operative mortality in this group was more than

40 per cent, but since January, 1959, 60 patients have been operated on at the clinic with only four deaths, a mortality rate of 7 per cent. These patients constitute one of the most difficult problems in cardiovascular surgery, but the experience at the clinic demonstrates that the best scheme of treatment in highly experienced and qualified hands is closure of the ventricular septal defect by open heart surgery.

Group 2.—This group of patients constitutes the largest and perhaps the easiest group in which to make a decision. If the clinical signs, the electrocardiogram and thoracic roentgenograms present evidence of a moderate or large left-to-right shunt, and especially if the patient has symptoms of cardiac embarrassment on moderate exertion, operation should be advised. The risk of operation is low in this group, and although proof is still lacking; nevertheless there is a strong clinical impression that if the ventricular defect is not closed pulmonary vascular obstruction may develop in some of these patients in later life.

In the evaluation of flow through the ventricular defect the presence of an apical mid-diastolic rumble in addition to the classic systolic murmur at the lower left sternal border is helpful in that it suggests the presence of increased blood flow across the mitral valve and so is consistent with a moderate-to-large, left-to-right shunt. A loud pulmonary second sound suggests increased pulmonary artery pressure but does not indicate whether the increase in pressure is due primarily to increased pulmonary blood flow or increased pulmonary vascular resistance. Factors favoring a diagnosis of increased pulmonary blood flow are an enlarged hyperdynamic heart, an apical mid-diastolic rumble, evidence of left ventricular overload in the electrocardiogram even in the presence of right ventricular overload, and evidence of increased pulmonary vascularity in the plain roentgenogram of the thorax. The presence of pulmonary-insufficiency murmur does not militate against a successful operation.

Successful operation makes the patient normal with regard to his cardiovascular system. Symptoms disappear, heart size becomes normal in relation to chest size, although this may take 1 to 2 years, and the only remaining alterations are right bundle-branch block on the electrocardiogram and frequently a systolic murmur of grade 1 or 2 at the middle and the lower left border

of the sternum. Although operation can be performed at any age, my colleagues and I prefer to have the repair carried out around the age of 5 or 6 years so that the child can be regarded as normal when starting school. We certainly prefer operation prior to the teens when a boy is wishing to compete in athletics and when development of the breast might cause a girl to be self-conscious of the operative scar and before the psychologic fears and emotional conflict often encountered in a teen-age boy or girl develop.

Group 3.—In this group, in contrast, are patients with small shunts, essentially normal electrocardiographic findings, no evidence of cardiac enlargement in roentgenograms and no evidence of increased pulmonary blood flow. These patients probably have very small defects and left-to-right shunts of less than 20 per cent of pulmonary blood flow. The life expectancy of this group is probably close to normal, and there is no decreased exercise tolerance. So long as the surgical procedure carries a substantial risk of mortality or morbidity, corrective operation is not justifiable. A hospital mortality of only 2 per cent and a morbidity of 2 to 3 per cent are regarded as too high a risk for this group. The often reported reason that operation is performed to protect these patients from bacterial endocarditis is a poor one when the present low incidence of this complication and its good response to therapy are considered. The prospect of losing an asymptomatic patient from an unnecessary operation or the possibility of producing complete heart block in one of these children should make one think long and hard before subjecting the child to operation. Surgical correction should be considered for this group of patients only if it can be performed with a mortality rate of less than 1 per cent.

Group 4.—In this group the patients have severe pulmonary vascular obstruction with a bi-directional shunt. For these patients it is important to decide whether or not the pulmonary artery pressure will decrease after closure of the defect. Pulmonary artery pressure is the product of the pulmonary blood flow and the pulmonary vascular resistance, and it follows that a fall in pulmonary artery pressure relative to systemic pressure after operation will result from a reduction in pulmonary blood flow. To achieve this, pulmonary flow must have exceeded systemic flow

prior to closure of the defect. If pulmonary artery pressure does not decrease, no benefit has occurred from closure of the defect and in fact the danger to the patient's life either in the immediate post-operative period or in the succeeding weeks or months is enhanced. There are four ways to estimate the degree of left-to-right shunt: (1) from clinical observation, (2) from the electrocardiogram, (3) from the roentgenogram, and (4) by cardiac catheterization.

If the data presented by all four of these methods are consistently for or against increased pulmonary blood flow, then the decision is not difficult, but if the data are contradictory, any decision requires consideration of all possible aspects of the case as follows:

1. *Clinical Observation.*—A history of persistent cyanosis when at rest in the presence of a ventricular septal defect with normally positioned great vessels and without pulmonic stenosis strongly suggests the presence of a dominant right-to-left shunt and, therefore, that successful surgical intervention will be impossible. Cyanosis occurring with exercise does not necessarily preclude operation, since at rest there may still be a dominant left-to-right shunt, but this sign is always a cause for concern, for it indicates considerable increase in the pulmonary vascular resistance.

2. *Electrocardiogram.*—For children the electrocardiogram is an invaluable clinical tool. When the pulmonary artery pressure is extremely high, the electrocardiogram will show marked right ventricular hypertrophy, but the information given by the tracing concerning the degree of overwork of the left ventricle is more important. Evidence for left ventricular overload suggests that the patient's condition is operable if other possible causes of left ventricular overload can be excluded, such as mitral insufficiency, aortic stenosis, mitral insufficiency, coarctation of the aorta or patent ductus arteriosus. The electrocardiographic criteria for left ventricular overload are not perfect but they are of great help.

These criteria have been described by DuShane and associates from the Mayo Clinic and are as follows: "(1) peaked, symmetrical T waves in leads reflecting left ventricle in children at any age (Leads V_6 , or II, III and aV_F); (2) Q waves greater than 0.4 mv. (4.0 mm.) in precordial lead V_6 in patients more than 3 years of age; (3) R waves greater than 2.5 mv. (25 mm.) in precordial

lead V_6 in children at any age; (4) S waves greater than the R waves in leads V_{3R} or V_1 in those patients less than 2 years of age, or S waves in lead V_1 greater than 2.5 mv. (25 mm.) at any age; (5) axis of mean QRS vectors in the frontal plane of $+60$ degrees or less in infants less than 3 years of age; (6) counter-clockwise QRS loops in the frontal plane in children less than 3 years of age, and (7) combination of 5 and 6 in children less than 6 years of age."

3. *Roentgenogram of Thorax.*—A plain postero-anterior roentgenogram of the thorax may be of great help. If the heart is enlarged and there is evidence of increased pulmonary blood flow, operability is suggested. If the heart is small and the peripheral pulmonary fields are clear even though the hilar vessels may be prominent, successful operation is much less likely since these are the signs of severe pulmonary vascular obstructive disease.

4. *Cardiac Catheterization.*—In cases in which the clinical electrocardiographic and x-ray findings are equivocal or contradictory, cardiac catheterization may be necessary to provide confirmatory evidence or to help delineate the diagnosis. Although values obtained at cardiac catheterization seem so authoritative because one is presented with an impressive array of quantitative data, nevertheless, these figures are no better than the equipment used to obtain them and the physician who made the calculations. Furthermore, they apply to the conditions occurring at a single time and under special circumstances. The possibilities of error in obtaining the data, in calculating flows and resistances and in the conclusions drawn are manifold. These data, therefore, should be considered only in relation to the clinical findings and the status of the patient at the time of study.

Complicating lesions, such as coarctation of the aorta, patent ductus arteriosus, aortic stenosis, aortic insufficiency, mitral insufficiency, pulmonic stenosis and corrected transposition of the great vessels, often are associated with ventricular defect and must be searched for carefully in the evaluation of each case.

Surgical Procedures.—Ventricular septal defects submitted for operation may be repaired by direct suture, or if undue tension would result on the sutures following direct closure, a prosthesis

should be inserted. Teflon is a satisfactory prosthetic material for this purpose.

Some authors have written enthusiastically about the results of pulmonary-artery banding as a palliative treatment for ventricular defects with large left-to-right shunts and systemic pressure in the right ventricle. The purpose of the procedure is to reduce pulmonary blood flow and pulmonary artery pressure beyond the banding site and thus diminish the left-to-right shunt. This operation should be employed only in hospitals where the surgical risk of direct closure of the defect has been excessive. The mortality rate of approximately 7 per cent from complete repair in our last 60 patients who were less than 2 years of age compares rather favorably with the mortality from banding. This is especially true when it is appreciated that these banded patients still require open heart surgery for repair of the ventricular defect at a later date, at which time removing the pulmonary artery band will be an additional hazard.

It has often been suggested that operation for closure of ventricular septal defects is not justifiable for small children. The arguments used to support this approach are: (1) many of the defects close spontaneously; (2) pulmonary vascular obstruction does not develop in these patients, and (3) medical treatment is successful.

Although some of the smaller defects, particularly those in the muscular septum, may close spontaneously, of the several hundred large ventricular defects which we have observed and operated on after a waiting period of several months to a few years not one has closed spontaneously. Although it may be true that only a small percentage of the larger defects leads to pulmonary vascular obstructive disease, we have seen several children who in early life had large hearts and increased pulmonary blood flow but who, before 10 years of age, have become cyanotic and have small hearts, diminished pulmonary blood flow and severe pulmonary-vascular obstructive disease, and who are thus no longer in condition for operation.

The fact that most children with ventricular defects do well for many years and do not have congestive failure does not justify the often heard comment that all of these children are easily controlled medically. Some of the sickest children seen on a pediatric service are those with large

ventricular defects, greatly increased pulmonary blood flow, and repeated bouts of congestive failure, often with atelectasis secondary to pressure on the left main bronchus from left atrial enlargement, and frequently with staphylococcal pneumonia. These patients do not thrive and attacks of pulmonary edema or uncontrollable failure may occur. Every institution which sees a number of these children will have a series of specimens in their necropsy files pointing to the severity of the condition. It thus seems that the small child or infant with a large ventricular defect who cannot be adequately controlled medically should be subjected to corrective surgery in an institution where the operation can be carried out with an acceptable risk.

Tetralogy of Fallot

Small children from the first few months of life to the age of 4 to 5 years who have severe tetralogy of Fallot and who require operation should have either a shunt operation or pulmonary valvotomy. The mortality rate from complete repair is prohibitive for children less than 2 years of age, but becomes acceptable as the children reach preschool age. The choice of Blalock's (subclavian-to-pulmonary artery anastomosis or Pott's aortopulmonary anastomosis) shunt or of Brock's pulmonary valvotomy for infants and younger children largely depends on the training and preference of the surgeon. Although theoretically Brock's valvotomy should allow an increase in the size of the pulmonary outflow tract with the passage of time, it is not readily controllable, and too much or too little relief of pulmonary stenosis may result. Pott's anastomosis is difficult to handle at later repair, so that Blalock's anastomosis is usually preferable.

Complete repair by closure of the ventricular defect with relief of the pulmonic stenosis by use of open heart surgery is, of course, the ideal treatment for tetralogy of Fallot. Many factors determine the outcome of the operation. Great anatomic variation exists in the degree and complexity of the pulmonary stenosis, and in general, the more severe the stenosis, the more handicapped and seriously ill is the patient. The correction of this part of the anomaly is extremely crucial. In cases in which the pulmonic stenosis is anatomically simple and localized, as in pure valvular stenosis, or in which a simple infundibular diaphragm-like obstruction is present, an

excellent result and low operative risk can be expected. But when hypoplasia and underdevelopment of the outflow tract of the right ventricle, the pulmonary valve and its ring, or pulmonary artery, or all three, are present, the technical problems of relief of stenosis are greatly increased, and the risk and results of surgery are less favorable. Other conditions being equal, the more extensive the surgical procedure required and the smaller the child, the greater will be the operative risk.

Other factors contribute to the operative mortality in tetralogy of Fallot: 1. Hypoplasia of the entire pulmonary arterial tree militates against success for even the palliative procedures. 2. The completeness of repair of the ventricular septal defect is crucial since a residual defect after relief of pulmonary stenosis may allow a massive left-to-right shunt for which these hearts and lungs are not prepared. 3. Post-operative heart block is a serious complication. Now only about 2 per cent of patients show complete heart block postoperatively, but this complication affects the prognosis most unfavorably.

Pulmonic Stenosis

Operation for pulmonic stenosis may be indicated at any age, including the first few days of life. Extremely severe stenosis may present with congestive failure at or soon after birth and semi-emergency pulmonary valvotomy should be performed in this group. Moderate degrees of pulmonic stenosis with pressures from 75 to 150 mm. of mercury in the right ventricle may be treated surgically whenever convenient. In general, the higher the pressure in the right ventricle, the more urgent the need for operation. Patients with pressure in the right ventricle as high as 250 mm. of mercury have been known to continue in good health for many years, but congestive failure may develop in others with pressures of less than 150 mm. of mercury. The patient's age, activity and symptoms must be considered in the final evaluation. A child 2 to 3 years of age who is asymptomatic and who has a right ventricular pressure of 80 mm. of mercury may be carried along until 8 to 10 or 12 years of age, whereas another child first seen at the age of 10 or 12 years who wants to compete athletically at school and who has a similar pressure may have the operation performed at his early convenience.

The risk of operation for pulmonic stenosis

with intact ventricular septum is extremely low. All patients with pulmonic stenosis who are cyanotic because of a right-to-left shunt at atrial level require prompt surgical relief of the stenosis, although the only surgical mortality at our institution for pulmonic stenosis occurred in this group.

Congenital Aortic Stenosis

Congenital aortic stenosis is one of the few congenital heart lesions which may eventuate in the sudden death of a child who appears otherwise well. No exact figure can be given for valve size or aortic valve gradient at which operation should be performed but certain general rules are evident.

In any case in which the stenosis is of sufficient severity to cause symptoms of angina or even shortness of breath on effort, in which congestive failure is present (this may occur in infancy) or in which considerable cardiac strain is apparent as shown by cardiomegaly in the roentgenogram of the thorax or by a left ventricular "strain" pattern in the electrocardiogram, then operation is advisable.

The problem arises in those patients who are asymptomatic, whose hearts are not enlarged and whose electrocardiographic findings are normal. We know that some of those patients have surprisingly large gradients across the aortic valve. At present it is our policy to measure the aortic valve gradients in nearly all such patients, preferably before school age and certainly before they take part in any vigorous or competitive physical activities. It will be some time before we have sufficient measurements for comparison with clinical findings to enable us to gauge better the severity of the stenosis on the basis of the physical, roentgenographic and electrocardiographic examinations. If the systolic gradient between the left ventricle and the aorta is greater than 50 mm. and certainly if it is more than 75 mm. of mercury, surgeons would agree that operation is indicated. In the presence of congestive failure with diminished cardiac output, the gradient will be diminished and will not truly reflect the severity of the disease. Again, the clinical findings must help in the decision. Patients with gradients of 30 to 50 mm. of mercury may be perfectly well at rest, but we do not know what happens to these gradients under conditions of severe exercise or as the child grows older. Such patients certainly should be

restricted from vigorous physical exercise, should be followed at regular intervals and probably should have further determinations of the aortic valve gradient at intervals of 2 to 3 years until they reach full growth.

Coarctation of the Aorta

Surgery for coarctation of the aorta of only moderate degree is usually deferred until the child is 8 to 12 years of age. The aorta by this age will be large enough to carry the blood flow of an adult so that even if the site of resection of coarctation does not grow further a significant degree of stenosis will not be present by the time the patient's body growth is completed.

In patients with severe degrees of coarctation of the aorta resulting in profound failure in infancy or in early childhood the question arises as to whether these children should be treated medically or surgically. If response to anticongestive measures is prompt, most physicians tend to follow these patients closely. In most cases by the end of the first year of life the child's circulation adjusts to the coarctation so that drugs such as digitalis are no longer required. If the baby does not respond promptly to anticongestive measures, operation should be carried out. Often such babies will have extensive hypoplasia of the aorta or associated lesions, such as patent ductus arteriosus and ventricular septal defect, but if an isolated coarctation is present, the operation can be performed with a very low risk. Interrupted rather than continuous sutures are used to repair the coarctation in infants to allow maximal growth of the suture line.

Patent Ductus Arteriosus

Operation for patent ductus arteriosus can be performed at any age, but unless the ductus is large and the patient is in failure or shows evidence of considerable cardiomegaly, increased pulmonary blood flow and electrocardiographic evidence of considerable left ventricular overload, delaying until the patient is at least 2 years old is usually preferable. Operation for an uncomplicated ductus can be done with a mortality which should be close to zero. Although the risk will be higher for small sick babies with a large ductus, operation can be performed successfully at any age. This is the most favorable lesion for surgical cure which may cause cardiac failure in infancy.

Transposition of the Great Vessels

During the past few years many types of palliative and corrective surgery have been attempted for transposition of the great vessels. The mortality rates are only just acceptable for the former and almost prohibitive for the latter type of procedure. New technics of repair are still being introduced and allow continued hope of better results as the years go by. It is not possible to compare the results of palliative operations with those of corrective operations by mortality rates alone, since after the former operations the patient is still far from normal, and correction may be technically impossible later after some palliative procedures.

In general the patients most acceptable for complete correction are those who have an atrial septal defect, no pulmonic stenosis or ventricular septal defect, and who have survived at least 1 year of life. By contrast, small babies with ventricular defects and inadequate mixing are probably best treated by creating an atrial septal defect, often accompanied by the creation of a shunt between the pulmonary artery to the vena cava. These procedures can be done without using extracorporeal circulation.

Atrial Septal Defect

Patients with uncomplicated atrial septal defect of secundum type usually do not have symptoms from the heart disease in the first few years of life. Diagnosis during childhood is frequently suspected on the basis of an enlarged heart found on x-ray examination of the thorax, for reasons such as a preschool examination, or perhaps a heart murmur is heard over the pulmonic area during examination for some childhood illness and is considered to be a little more prominent than usual.

Operation is not urgent, but the preschool year is a good time for it since these children then start school on an equal basis with their peers. In those few cases in which symptoms or undue cardiomegaly are noted at an earlier age, operation, of course, can be carried out sooner. Certainly it is preferable to correct these defects before children reach their teens because of the greater awareness of the possible problem associated with operation and unwarranted fears that may develop at that time. Operation for uncomplicated atrial septal defect can be carried out

with extremely low risk and with the expectation of an excellent result.

Endocardial Cushion Defects

These lesions constitute a series of anomalies of varying complexity according to the degree of defective development of the atrial septum, the ventricular septum, the mitral valve and the tricuspid valve. Partial atrioventricular canals or septum primum defects are congenital anomalies in the development of the endocardial cushions resulting in a defect in the lower part of the atrial septum together with a cleft in the anterior leaflet of the mitral valve. The atrial septal defect can be readily closed at a low risk, and in the great majority of cases, successful repair of the mitral valve is also possible. In a small percentage of patients a significant degree of mitral insufficiency may persist.

The more nearly complete forms of endocardial cushion defects, termed "complete atrioventricular canals," are of greater complexity, with extension of the septal defect down into the ventricular septum, together with a cleft extending across the mitral and tricuspid valves. In the most severe forms the virtual absence of the atrial and ventricular septa forms a large contiguous defect and a common atrioventricular valve ring. In these severe cases congestive failure may be present from the first few weeks or month of life and in the less severe cases after the first few years of life. Surgical intervention is recommended when cardiac size and symptoms indicate that medical therapy is not adequate for the patient's survival. The risk of operation depends on the extent of the lesions encountered. Even when the atrial and ventricular defects can be successfully closed by a prosthesis, the chance of survival is slight if the atrioventricular valve is so distorted that severe mitral or tricuspid insufficiency persists postoperatively. On the other hand when closure of the septal defects is achieved without the devel-

opment of heart block and when sufficient mitral and tricuspid valvar tissue is present so that these valves are reasonably competent after repair, a successful result could be achieved. The over-all mortality for surgical repair for the complete form of atrioventricular canal is extremely high, so that it is fortunate that the lesion is not very common.

Summary

The decision to operate on any patient with congenital heart disease must result from a consideration of several factors including: (1) the severity of the disease; (2) the skill of the surgical team;* (3) the age of the patient.

The severity of the disease may be reflected symptomatically in the electrocardiogram, in the roentgenogram of the thorax or from cardiac catheterization.

Among the skills required of the surgical team and their colleagues are included accuracy of preoperative diagnosis and preoperative care, experience, dexterity and alertness of the operating surgeon and his assistants, and of the anesthesiologist, and, finally, detailed and expert postoperative care.

The age of the patient is important in that, other things being equal, it is easier to perform open heart surgery on a child who has reached the age of 4 to 5 years than on one in the first year of life. The technical problems are likely to be greater in the smaller children.

This report has been a broad survey of the problems in the selection for operation of patients with congenital heart disease. Many of the finer points leading to a final decision for or against operation have had to be omitted. The general principles of selection have been outlined and may serve as a helpful guide.

Reference

- DuShane, J. W., Weidman, W. H., Brandenburg, R. O., and Kirklin, J. W.: The Electrocardiogram in Children With Ventricular Septal Defect and Severe Pulmonary Hypertension: Correlation With Response of Pulmonary Arterial Pressure to Surgical Repair. *Circulation*. 22:49-54 (July) 1960.

*The term "operating team" or "surgical team" in this paper refers to the entire pediatric cardiology group including the pediatric cardiologists, the surgeons, the anesthesiologists and the nursing staff engaged in the preoperative and postoperative care of these children.

PROBLEMS IN MEDICINE — INTERNAL AND EXTERNAL

R. B. Robins, M.D.*

Banquet Address
Fayetteville Postgraduate Seminar
July 12, 1961

SOME OF US IN THIS room have just returned from New York where we attended the largest medical show ever held on this earth—the annual AMA meeting at which there were nearly 60,000 people registered including some 23,000 physicians. I never saw anything so tremendous. It covered acres of area. There were 670 exhibits that covered four football-field-sized floors of New York's vast Coliseum.

I want to call your attention to some of the internal and external problems facing modern medicine in the United States.

First, let me briefly discuss OSTEOPATHY. Here is present AMA policy. 1. There can never be an ethical relationship between a doctor of medicine and a cultist; 2. There can never be a majority party and a minority party in any science; 3. Recognition should be given to the transition presently occurring in osteopathy, which is evidence of an attempt by a significant number of those practicing osteopathic medicine to give their patients scientific medical care. This transition should be encouraged so that the evolutionary process can be expedited; 4. Schools of osteopathy are now adopting and modeling their curricula after scientific medical schools; 5. The test now should be: Does the individual doctor of osteopathy practice osteopathy, or does he in fact practice a method of healing founded on a scientific basis? If he practices osteopathy, he practices a cult system of healing and all voluntary professional associations with him are unethical. If he bases his practice on the same scientific principles as those adhered to by members of the American Medical Association, voluntary professional relationships with him should not be deemed unethical.

The AMA leaves decisions now to be determined at the state level.

*Camden, Arkansas

A second problem I want to comment upon is MEDICAL DISCIPLINE. We have had a special committee studying the profession's disciplinary mechanisms and Dr. Paul Henley of El Dorado, Arkansas has been a hard working member of this committee. This committee has recommended that the by-laws of the AMA be changed so that the AMA can suspend or revoke the AMA membership of a physician guilty of violation of the Principles of Medical Ethics or the ethical policy of the AMA regardless of whether action has been taken against him at the local level. And it is further recommended that each state association report annually to the AMA all major disciplinary actions taken in each state during the preceding calendar year. This will give a roster of rotten-apple doctors over the United States. The committee urges state and county medical societies to utilize their grievance committees as "grand juries" to initiate action against offending doctors who need discipline. Physicians must not be afraid to censure or punish their fellow doctors who are guilty of incompetence or unethical conduct. In other words, we must police our own ranks to get rid of the small percentage of rotten apples in our own profession.

I was very proud that Dr. Richardson and Dr. Kolb on behalf of the Arkansas delegation introduced Resolution No. 5 which states:

Whereas, Medical students are being graduated from our medical schools with a modicum of knowledge regarding the socio-economic-political aspects of medicine, and

Whereas, It is important that a doctor be a well rounded *citizen* as well as a good scientist; and

Whereas, the above aspects of medicine are continually receiving more and more attention; therefore be it

Resolved, That the House of Delegates of the American Medical Association instruct the Council on Medical Education and Hospitals to make it mandatory that medical schools devote more attention in their curriculums to this arena of medical education.

As a result of this, I am pleased to report to you, that the House took action and suggested that each medical school develop and present a required course in ethics and socio-economic principles, and furthermore that each state board of

medical examiners include *questions* on ethics and proper socio-economic practices in *all* examinations for a license to practice medicine.

I have been assigned the task of editing such a book that may be used as a text in this field and I am now in the process of obtaining outstanding contributors to this volume which we hope to have published by The Year Book Publishers of Chicago by the first of the coming year. Dr. Rouse, who was on your program today, together with Dr. Wingate Johnson of Bowman-Gray School of



At Arkansas Medical Society breakfast at AMA Meeting, Chicago, June 25, 1962 (l. to r.) Dr. George M. Fister, President-elect AMA, Dr. R. B. Robins, AMA Trustee, and Dr. Leonard Larson, President AMA. (Note Arkansas Welcome backdrop behind speakers' table)

Medicine are now preparing the concluding chapter for the book. Other contributors are Dr. Gus Buie of the Mayo Clinic on "Modern Medical Ethics;" Dr. John Porterfield, Deputy Surgeon General, on "Government in Medicine—local, state and national;" Professor James Wiggins, Professor of Sociology, Emory University, on "The Sociological Aspects of Medicine;" Professor Arthur Kemp of Claremont College on "The Economics of Medicine;" Mr. Ed Faulkner, President, Woodman Life and Accident Insurance Company, on "The Story of Voluntary Health Insurance" and a number of other outstanding contributors. I am having a lot of fun working on this project and hope to have it finalized before too long.

Yes, we want an active, aggressive and continuing interest manifested in medical disciplinary matters so that, by a demonstration of good faith, medicine will be permitted to continue to discipline its own members when necessary.

The AMA is greatly interested in the use of every avenue of communication so that the public and the members of the medical profession are properly and adequately informed of the policies and the concern of the medical profession with respect to all phases and aspects of medical care for all people.

Another problem in which we are interested is GENERAL PRACTICE and preparation for General Practice. I might say to you that I am the only general practitioner presently on the Board of Trustees of the AMA. However, I try to represent the American physician, whether he be general practitioner or specialist. It is, however, generally known that I was one of the founders of the American Academy of General Practice, served the first three years as its Speaker of the Congress of Delegates and then as the fifth national President. So I have a deep interest in general practice and in its organization—the AAGP.

Eight resolutions were introduced in New York on the subject of creating new two-year, residency training programs in general practice. The House agreed that there appears to be a need for such programs for those individuals who desire more experience in obstetrics and surgery than may be available in the currently existing Family Practice Program. So it is asking the Council on Medical Education and Hospitals to approve other

two-year programs in general practice which incorporate experience in obstetrics and surgery.

Incidentally, too, this session discontinued the AMA's General Practitioner of the Year award and is leaving this to the American Academy of General Practice to select the "Family Doctor of the Year." Many of us hope that the two organizations can now get together and have the AAGP select the man and let the AMA make the announcement of the award at the AMA meeting. In this manner the selectee would obtain under public relations. It is hoped that Dr. Richardson, Dr. Kolb and I and others can work out such an arrangement with the two organizations.

My friends, the public wants and asks for more family doctors. For example, 95% of all the requests from Massachusetts communities are for family doctors, whereas 75% of all doctors seeking new locations were specialists. This is an example of the general situation that exists all over the country.

The need for more family physicians is recognized by the American public, but medical graduates these days have shown a decreasing inclination to enter the general practice of medicine as family physicians. We must do something about this problem.

I must begin now to conclude my remarks to you this evening by discussing briefly the great internal problem that is facing American medicine at this moment—that is, whether we are going to continue to have freedom in America in the medical arena or whether we are going to have governmental control with a loss of the freedom we have always known in our great country. A very strong position was taken on this subject in New York and listen to this statement which was unanimously adopted in New York. Let me read it slowly and you can detect what it means—"THE MEDICAL PROFESSION WILL NOT BE A WILLING PARTY TO IMPLEMENTING ANY SYSTEM WHICH WE BELIEVE TO BE DETRIMENTAL TO THE PUBLIC WELFARE."

I am not here this evening to discuss the pros and cons of the Kerr-Mills law versus the new proposed legislation by the Kennedy administration known as the King-Anderson Bill. You know these as well as I do and if you doctors and your wives don't, you should be ashamed of yourselves.

You have plenty of materials available to you for use, both the doctors and their wives. And

the wives should be utilizing the Ronald Reagan record at coffee klutches in this and every community every day. If you ladies are not doing this, then you are letting your husbands down. We are closer to capture by the federal government than we have ever been before. And let me tell you we can only lose this battle *once*.

Let me conclude my remarks by making some statements that should very seriously concern you and concern me—I mean them. LISTEN.

The Russians say that they will never have to fire a shot to conquer America for Communism. They plan to bankrupt us and make us easy picking for Communism. Mr. K not long ago said that “small doses of Socialism will lead to Communism.”

Listen at this. Imagine such a statement as this. Professor Arthur Schlesenger, Professor of History at Harvard, and now one of President Kennedy’s closest advisers recently told an audience of students at a college in Massachusetts that “the welfare state is the best defense against Communism.” I ask you, my friends how can you reconcile his statement with the statement of Mr. K??? As I understand Communism it is the perfect example of the welfare state where the individual amounts to nothing and the state is supreme.

I want to point out to you some things that are happening to you and me and let us think about them:

(1) Watch your increase in taxation. You and I spend a third of our time—yes, we spend four months or more out of every year just working to pay our taxes; (2) look at the galloping increases in welfare programs designed to penalize those who work and help those who don’t work—and now the new proposed one on health care under social security; (3) look at the steady dislocation of power from states and local communities to Washington—look at the mounting national deficits and the huge sums spent by the federal government to do what the states and the local communities can and should do; I was impressed recently by a statement made by Congressman John Bell Williams of Mississippi—he chided Doctor Sowder, the Florida health commissioner, when the doctor was testifying in support of another huge spending bill—he said to

the doctor when he was testifying something like this: “Doctor Sowder, I cannot understand you coming here to ask a bankrupt federal government to subsidize a solvent state, like the state of Florida.” (4) My friends, in the silent robbery of inflation induced by huge budgets and deficit spending, every child in America today starts off life owing \$1,600 to the creditors of the United States. Our national debt, approaching now \$300 billion, is larger than the debts of all other countries on earth put together. Do you have a concept of what a billion is?????

Well, let me give you a little concept of what a billion is. Approximately only one billion minutes have elapsed since Christ was born. We owe almost 300 times this in dollars. The value of the dollar, as you all know, has been sliced more than in half in the past 20 years.

Piece by piece, inch by inch, the structure of the *total* state is being erected around our heads.

All of this has moral as well as material results. The more people are coddled, the weaker their determination is to stand on their own feet; the weaker their determination, the more coddling they want. And so through the subtle erosion of will and energy, the character of this nation is being silently destroyed.

My final admonition to you tonight is this: You and I alone can’t do anything about it. But you and I and our many friends can do something about it. Let me tell you how. We and all of our friends can write and call our congressmen and senators about it. We can worry the hell out of them by calls and letters from us and our friends, especially about the King Bill now before Congress. They pay attention to what their constituents say to them. That hand written letter expressing a personal feeling means something. Form letters mean nothing. But if you and our friends don’t take time enough to write and call * * * name all of them * * * telling them in our own language how we feel then they are going to say there is not much interest in this piece of legislation in my area.

And, finally, my friends, if you don’t do this and your friends don’t do it and I don’t do it, then one of these days you and I are going to spend our sunset years telling our children and our children’s children what it once was like in America when men were free.

WHAT'S NEW?



RECENT ADVANCES IN ANESTHESIOLOGY

Vea J. Riegler, M.D.*

UNTIL ABOUT THE TURN of the century, almost all general anesthesia was accomplished by administration of three anesthetic agents, namely ether, chloroform, or nitrous oxide and almost all regional anesthesia by the injection of a single local anesthetic drug, cocaine. The physician administering the anesthetic was untrained.

Over a span of 50 years the number of drugs in the anesthesiologists armamentarium has increased manyfold. A new specialty was born. Scarcely a month goes by without at least one drug being offered the anesthesiologist by the pharmaceutical houses.

The scientific, clinical and technical advances in the field of pain relief has been tremendously accelerated by the role of the pharmacologist and chemist in the development of ideal anesthesia. The advent of intravenous anesthesia after World War II has been the most "popular" advancement in the anesthesiologists entire armamentarium. The request for that "in the arm anesthetic" by both surgeon and patient suddenly catapulted anesthesia from the growing pains of adolescence into maturity. Extensive abdominal and thoracic surgery has placed new demands for safe anesthesia, new demands for trained specialists.

In comparatively rapid succession improved techniques were attained with the widening scope of surgery. Endotracheal and endobronchial anesthesia attained great importance especially in thoracic surgery, in circumstances where position

of patient renders respiration difficult or dangerous. Physiological gas analyzers measures pO_2 , pCO_2 , pH in vivo continuously during anesthesia, in vivo blood volume determinations are readily available enabling the anesthesiologist to accurately replace blood or fluid volume. The electroencephalogram monitors changes in depth of anesthesia, electronic instruments now measure the patients vital functions. Hypotensive anesthesia gives the surgeon a "dry field," hypothermia protects the vital organs especially the brain from anoxia during cardiac by-pass operations. Anesthesia by electric current (electronarcosis) is now being re-evaluated. Another volatile anesthetic, Halothane, approaches the ideal anesthesia with its smooth rapid induction and nonexplosive characteristics. Single injection or continuous spinal anesthetic techniques utilize relatively non-toxic anesthetic agents today, caudal and epidural anesthesia, diagnostic and therapeutic blocks find wide application in certain fields of surgery.

With all the advances in anesthesia, in instrumentation, in improved techniques and in new drugs; with no intent to underrate these aids, a stream of electrons cannot be endowed with good clinical judgment. There is no substitute for reason. The anesthesiologist as a consultant with the surgeon and the internist is an unparalleled team whose ultimate goal is to elevate the standards of patient care. The anesthesiologist accepts and discharges his responsibilities as a consultant. This is the most valued advancement in the mature specialty of anesthesiology.

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TEACHING SEMINAR

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THE MANAGEMENT OF ACUTE RENAL FAILURE

George L. Ackerman, M.D.*

ACUTE RENAL FAILURE is marked by the abrupt appearance of renal insufficiency with oliguria and azotemia in a previously healthy person. Three stages may be recognized in the clinical course of this disorder: renal injury due either to ischemia or nephrotoxic exposure, a period of oliguria, and finally a diuretic phase during which urine volume increases and the patient's disordered biochemical findings revert to normal. The period of oliguria may last from a few days to a period of weeks, however, the usual duration is 7 to 12 days. Numerous agents and conditions capable of precipitating the initial renal injury may be listed but the basic causation in most of these may be assigned to renal ischemia or to the action of some agent toxic to renal tubular epithelium.

The decade from 1940 to 1950 was a period during which the entity of acute reversible renal failure was defined and described. The next 10 years saw a rational approach to therapy emerge with a more or less standardized regimen of fluid restriction being adopted. Many reports attest to the success of this program of conservative treatment. Further advances are to be made in the earlier recognition and perhaps reversal of the syndrome during its incipient period. The increasing interest in techniques of artificial dialysis and the wider availability of dialyzing equip-

ment have furthered interest in renal failure.

Several published reports are available that illustrate the clinical course of renal failure as observed in large numbers of patients (1, 2, 3). In addition excellent monographs have concerned themselves with treatment (4, 5) and reviews of recent advances in the knowledge of this syndrome are available (6, 7). This paper will deal with the diagnosis and management of acute renal failure.

Diagnosis

The most common clinical setting in which this disease occurs is that of hypotension following blood loss, trauma, or severe burns. The precipitation of acute renal failure by hypovolemic shock is common postoperatively and in the post-partum patient. The vulnerability of the obstetrical patient to the development of renal failure is worthy of note. Some 20% to 25% of cases of renal failure occur during pregnancy or in the post-partum period, making this the largest homogenous group of patients. It seems clear that somehow the kidney of the pregnant woman is especially susceptible to ischemia. The reason for this is not known.

Acute renal failure may follow shock or circulatory failure of any etiology—bacteremia, hypovolemic shock, the hemoconcentration of severe burns, or trauma. Persistence of oliguria after correction of circulatory inadequacy is strongly suggestive of acute renal failure and warrants in-

*Assistant Professor of Medicine, Department of Medicine, July 23, 1962.

stitution of an appropriate therapeutic regimen. Examination of the urine at this stage may be helpful in confirming the diagnosis. Typically the urinary specific gravity is low at this stage of renal failure. A specific gravity above 1.015 would suggest that circulating blood volume had not been sufficiently restored and that renal injury had not occurred. Gross hematuria or proteinuria may or may not be present. It is also of help in doubtful cases to measure the urinary content of urea and of sodium. The urine in early renal failure is characterized by a low urea content so that the urine to plasma urea ratio is less than 5 to 1 and by a sodium content of greater than 35 or 40 mEq per liter. Complete anuria is rarely seen and its presence suggests ureteral obstruction.

It has been proposed that early in the course of acute renal injury a reversible period may exist and the use of an osmotic diuretic agent such as mannitol has been recommended to test the kidney's ability to increase urine flow. Barry and Malloy (8) suggest the intravenous injection of 12.5 grams of mannitol as a 25% solution with subsequent observation of urinary volume. If within the next 3 hours the urine volume does not exceed 40 ml per hour, parenchymal renal damage has occurred and a treatment program for renal failure should be begun. If, on the other hand, urine flow increases successive infusions of mannitol are given to maintain as osmotic diuresis. There is evidence that this form of diuresis may prevent renal failure when it is instituted shortly following the ischemic insult to the kidney.

Diagnosis is rarely a problem after ingestion or exposure to nephrotoxic agents. Suicide attempts with bichloride of mercury and home use of carbon tetrachloride are two situations commonly seen. It is worthy of mention that the appearance of oliguria may be delayed for as late as 3 days after inhalation of carbon tetrachloride.

The Oliguric Stage

The oliguric patient is severely limited in the degree to which he can alter fluid and acid-base metabolism. Further, he has no route of exit for potassium ions which may accumulate to reach toxic levels. Nitrogenous waste products cannot be excreted and their retention ultimately results in the uremic syndrome. The physician's attention to fairly simple details in the manage-

ment of the patient during this period is a factor of greatest importance in the outcome of the illness.

Fluid Therapy

Overhydration with resultant pulmonary edema was formerly a common cause of death in patients with acute renal failure. Recognition of the futility of forcing fluid in an attempt to "flush out" the kidneys and adoption of fluid restriction in the management of these patients represent important advances that have lowered the mortality during the past decade. How much fluid should the oliguric patient be given? Insensible fluid loss (water vapor in expired air and insensible sweating) amounts to 12 to 14 ml per kilogram per 24 hours, that is about 1 liter per day in an averaged sized man. This loss may be increased by hyperventilation, fever, or by gross sweating. Endogenous water production from cellular breakdown and metabolism reaches 500 to 600 ml per day. This "covers" part of the insensible loss so that replacement of 500 ml of electrolyte free water plus measured losses (urine, vomitus, diarrheal stools) is a reasonable fluid prescription. This may be expressed diagrammatically as:

$$\begin{aligned} &\text{insensible loss (approximately 1,000 ml)} + \\ &\text{measured losses — endogenous water produc-} \\ &\text{tion (approximately 500 ml)} = \text{fluid required} \\ &\text{daily} \end{aligned}$$

This may be given orally if the patient is alert and not nauseated or it may be administered intravenously if necessary.

An accurate record of intake and output is of great value in following the patient and the importance of this must be stressed to all concerned with his care. A reliable index of day to day fluid balance may be obtained by weighing the patient daily. Because of tissue loss the patient should be allowed to lose approximately 1 pound a day. If sufficient fluid is given to maintain a stable body weight overhydration will result.

Cellular catabolism releases protein to the extracellular fluid. The breakdown of protein to urea, sulfates, phosphates, and phenolic compounds hastens the appearance of uremia. Protein feeding has the same effect and for this reason is contraindicated. In addition large amounts of potassium reach the extracellular fluid after cell lysis and further increase the hazard of hyperkalemia. Protein catabolism may be lessened by the provision of calories in the form of carbohy-

hydrate. This is most conveniently given as glucose. If the basic fluid ration of 500 ml is given as 20% glucose solution then at least 100 grams of carbohydrate are furnished. This may be taken orally flavored with lemon juice or can be given by intravenous drip.

Another means by which protein breakdown is diminished is by the use of anabolic steroids (9, 10). These compounds, congeners of testosterone, are effective in slowing protein catabolism. Consequently the rise of urea and other nitrogenous waste products in the blood is delayed when these drugs are used. They have little effect in cases of traumatic origin where devitalized tissue is present and where the stimulus to cellular catabolism is more intense. Several compounds have been used and are probably equally effective. We prefer to use nandrolene (Durabolin, Organon) because of the lack of hepatotoxicity seen with this drug.

Potassium

Another potentially lethal hazard faced by the oliguric patient is hyperkalemia. An excess of potassium ion in the extracellular fluid has an adverse effect on the heart producing various disturbances of the conduction system which may proceed to asystole or ventricular fibrillation if left untreated. The effect of an elevated serum potassium level on the heart makes the electrocardiogram a valuable adjunct in following the patient. The earliest change observed is the development of tall, peaked, narrow based T waves. With advancing intoxication the P-R and QRS intervals lengthen. The P wave becomes lower in amplitude and may eventually disappear. Finally an idioventricular rhythm may be succeeded by a "sine wave" QRS configuration or ventricular fibrillation.

The best approach to potassium intoxication is prophylaxis; prohibition of any potassium containing food or fluid and provision of carbohydrate calories to prevent cellular breakdown. In our experience excellent control of potassium levels has been attained with the use of a cation exchange resin (Kayexalate, Winthrop) used as described by Flinn, Merrill, and Welzant (11). The resin is given orally in the dosage of 15 grams, 4 times daily, together with 10 ml of sorbitol. Sorbitol acts as an osmotic laxative preventing impaction of the resin. After the desired potassium level in the serum is attained the dosage of resin may be reduced to 5 grams 4 times daily and sor-

bitol given in amounts sufficient to produce 1 or 2 loose stools a day.

If the potassium is markedly elevated and advanced electrocardiographic changes are present, temporary benefit may be obtained by infusion of 50% glucose containing one unit of crystalline insulin for each 3 grams of glucose. The glucose so given is deposited intracellularly as glycogen and this transfer also moves phosphate and potassium into the cells. As the glycogen is metabolized, the potassium is returned to the extracellular fluid so that the effect of the therapy is temporary. Nonetheless, it may be life saving. In a 30 minute period 200 to 300 ml of the glucose-insulin solution should be given. An effect is seen in 30 minutes to 1 hour and persists for 4 to 6 hours.

The most effective way of quickly removing potassium from the body is the use of the artificial kidney. Peritoneal dialysis is also effective but not so rapidly. Although potassium levels can be controlled with resin therapy, when this is started early some patients who have not received resins or who have been mistakenly given potassium may require dialysis. Patients who have been severely traumatized tend to develop dangerously high levels of potassium quite rapidly. This is due to the fact that injured or necrotic tissue releases large quantities of potassium to the extracellular fluid. These patients may require dialysis early in their course (12).

Uremia

The uremic syndrome is a collection of signs and symptoms that is frequently observed in patients with renal insufficiency. Although no specific compound can be identified as a causative agent, accumulation of urea in the blood is always present. Urea in itself is non-toxic but its rise seems to parallel that of the unidentified metabolites responsible for uremic symptoms; thus the height of the blood urea roughly correlates with the severity of the clinical manifestations.

Nausea, vomiting, intractable hiccups, muscle twitching, and stupor or delirium are some of the symptoms that plague the uremic patient. In addition it seems that the patient with uremia is unduly susceptible to infection and prone to hemorrhagic tendencies. Changes in red cell survival and production lead to anemia, and in some patients sterile pericarditis develops.

Development of the uremic syndrome is the

chief contribution to the morbidity of acute renal failure. Its effect on the patient's condition and the complications it introduces in the patient's care may seriously prejudice his chance of survival. Previously outlined measures—administration of carbohydrate, withdrawal of protein, and anabolic steroids—are helpful in preventing or impeding the development of uremia, however, if oliguria lasts over one week some uremic symptoms usually appear. The presence of uremia is the usual indication for treatment with the artificial kidney when conservative means of preventing hyperkalemia have been successfully employed.

Dialysis with the artificial kidney or peritoneal lavage is usually successful in reversing the symptomatology of uremia. This is the greatest contribution of artificial dialysis to the management of these patients. Although biochemical abnormalities are quickly reversed, a lag period of 24 hours may elapse before corresponding clinical improvement is seen. In centers having a special interest in acute renal failure there is a trend toward earlier and more frequent dialyses. All agree that one should not wait until clinical deterioration has occurred and use dialysis only as a last resort.

Two abnormalities of serum electrolytes are commonly seen. These are metabolic acidosis and hyponatremia. Failure of normal hydrogen ion excretion by the kidney seems an adequate explanation for the development of acidosis. Hyponatremia is less easily explained. An intracellular shift of sodium has been postulated. It is probable that this occurs, but whether this is the entire explanation of the observed lowering of the serum sodium may be questioned. When fluid restriction is rigid and loss of weight is allowed, hyponatremia is less likely to develop. This suggests that overhydration with simple dilution of body sodium may account for some of the cases. Treatment aimed at correcting either the sodium level or the metabolic acidosis is rarely successful and is dangerous. Administration of sodium containing solutions, either saline or sodium bicarbonate, to the oliguric patient is always accompanied by the danger of pulmonary edema.

Development of anemia with hemoglobin levels of 8 or 9 grams per 100 ml is a common feature of renal failure. Usually this requires no therapy and for the reason mentioned transfusion may be dangerous.

Before the importance of fluid restriction was realized and prior to the availability of effective measures to control potassium excess, patients suffering from renal failure died from overhydration and pulmonary edema or from the cardiotoxic effects of hyperkalemia. This is no longer the case. Infection and sepsis are now the leading causes of death in these patients. Several reasons may be advanced for the heightened incidence of infection in patients with renal failure. Uremia, per se, by some unknown mechanism seems to predispose to infection. The clinical state causing renal failure may provide a focus for the development and spread of infection. The stupor of uremia with its blunted cough reflex is perhaps an important factor in the development of pneumonia. Intravenous fluid administration and the occasional necessity of bladder catheterization provide ports of entry for bacteria.

Every effort should be made by the physician to recognize an infectious process early in its course and procedures carrying risks of bacterial contaminations should be avoided if possible. An indwelling catheter is not necessary during the oliguric period. Plastic intravenous catheters should not be left in place for prolonged periods.

Prophylactic administration of antibiotics has consistently failed to prevent infection and serves only to promote the development of resistant organisms. Antibiotic therapy during oliguria presents problems not seen in the patient with normal renal function (13). The dosage of tetracycline may be reduced to 500 mg daily and that of streptomycin to 500 mg every third day with the maintenance of adequate blood levels. These and similar agents which normally are excreted by the kidney may reach toxic levels if given in the usual dosage.

Dialysis

Dialysis using one of the various types of artificial kidneys or intermittent peritoneal lavage plays an important role in the management of renal failure. Although many patients may be managed quite well and recover without the need for dialysis, the availability of dialyzing equipment greatly strengthens the physician's ability to care for the oliguric patient. Potassium levels may be lowered within a period of hours, symptoms of uremia may be reversed, and if necessary, excess fluid may be removed from the patient. Choice of the method of dialysis with the artificial kidney or with peritoneal lavage is chiefly a

matter of facilities available, experience, and the urgency of correcting certain abnormalities. Both methods enjoy certain benefits and unfortunately both have their own disadvantages. Both have been employed satisfactorily at the University Hospital. Details of the use of each technique are available in other publications (14, 15).

An absolute indication for artificial dialysis is a rising serum potassium level that cannot be controlled by the means outlined. The other important reason for using dialysis is the development of uremic symptoms which interfere with the patient's care.

The Diuretic Phase

The onset of diuresis is marked by a daily urine volume over 400 ml which increases in a step wise manner. In the first few days of diuresis uremic symptoms may persist and blood urea nitrogen and potassium may continue to rise so that the same precautions pertaining to uremia and hyperkalemia observed during oliguria must be continued in the early diuretic stage. The patient is likewise still susceptible to infection and to the complications of his primary illness.

In some patients large amounts of sodium and potassium may appear in the urine during diuresis and this may be quantitated by measuring the electrolyte composition of the urine. An apparent sodium or potassium wasting may represent excretion of a "backlog" of excess solutes that have been retained and if clinical evidence of sodium or potassium depletion does not appear then these losses need not be replaced.

Once it is apparent that the daily urine volume is greater than 1000 ml and hyperkalemia is not a problem the patient may be permitted a full diet and ad lib fluid intake.

Complete clinical and biochemical recovery sometimes require a period of weeks. Although moderate impairment of renal function can be demonstrated in patients who have recovered from acute renal failure it is rarely of clinical importance and for practical purposes the patient is left with normal kidneys.

Prognosis

The outlook for patients with acute renal failure has improved but there remains an appreciable mortality rate of approximately 50% in series reported from various centers. Ironically, a fourth of these deaths occur after diuresis begins so that careful management must continue even after

urine output has increased. The main determinant of mortality is the primary disease producing renal failure. In patients with burns, trauma or extensive surgery the mortality rate reaches 75%. On the other hand, a more favorable prognosis is seen in the group of patients who have ingested a nephrotoxic agent or in obstetrical patients with postpartum hemorrhage. In this group mortality rates of 20% to 25% are recorded.

Summary

Acute renal failure may follow shock of any etiology and is recognized by oliguria persisting after the circulation has been returned to normal.

The important features in the management of oliguria may be summarized as follows:

- 1) Fluid restriction — 500 ml daily plus measured losses.
- 2) Prohibition of protein or potassium intake.
- 3) Provision of calories as carbohydrate.

Although conservative measures may successfully control hyperkalemia and uremia, artificial dialysis may be required.

Even though the prognosis of renal failure has improved, mortality remains at approximately 50%.

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ELECTROCARDIOGRAM



OF THE MONTH

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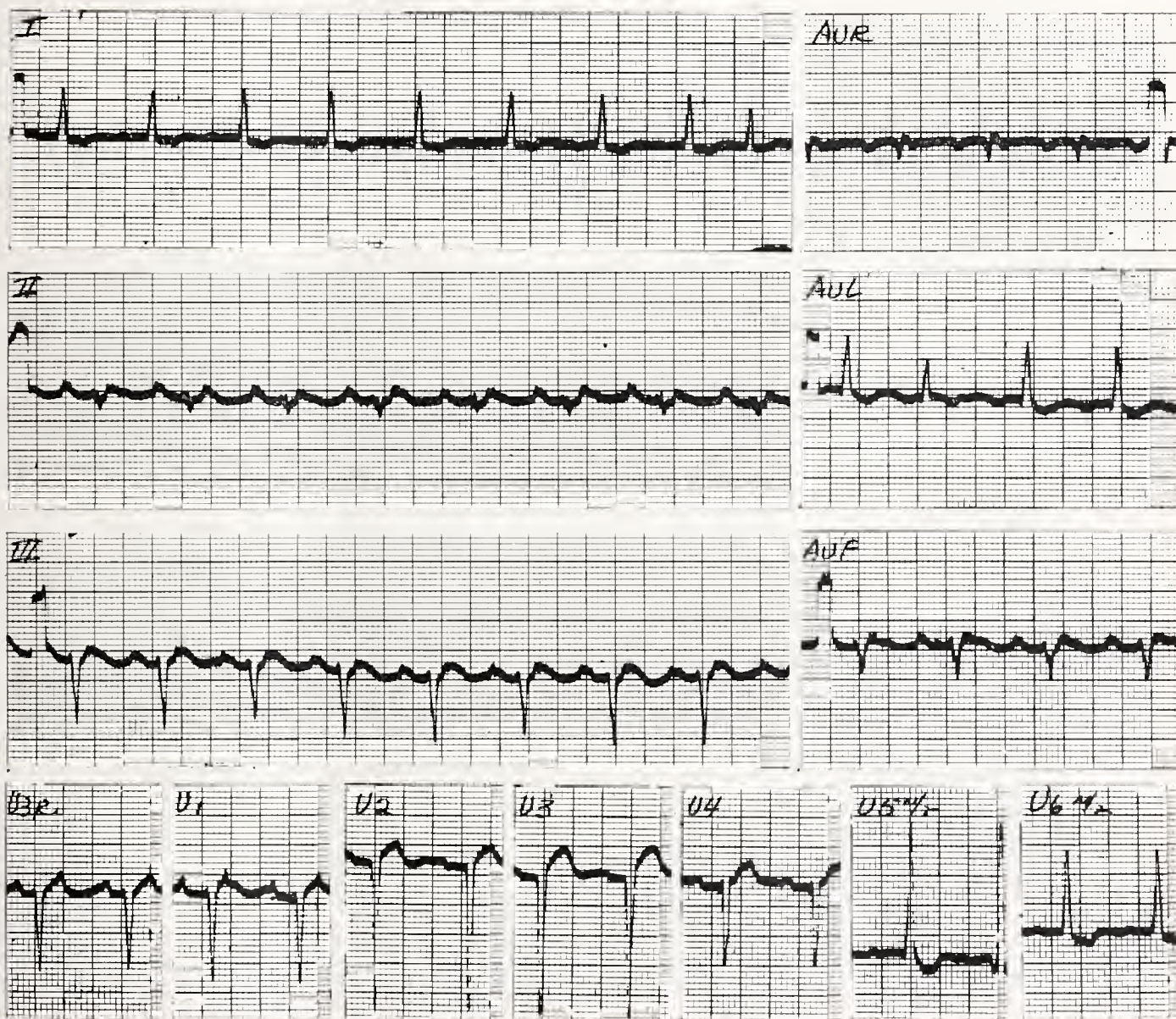
WHAT IS YOUR INTERPRETATION?

AGE: 75 SEX: M BUILD: SLENDER BLOOD PRESSURE: 115/82

MEDICATION: Digitalis, amount not known.

HISTORY: Congestive failure.

Answer on Page 163



*James S. Taylor, M.D., Professor of Medicine, The Department of Medicine, University of Arkansas Medical Center.

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

Answer on Page 163





MIDWIFE PRACTICE IN ARKANSAS — 1940-1961

IN ARKANSAS IN 1961, 297 midwives reported 3,596 births. All but 22 of these midwives had valid annual midwife permits for the year, and these 22 without permits reported only 51 births, or 2% of the total midwife deliveries.

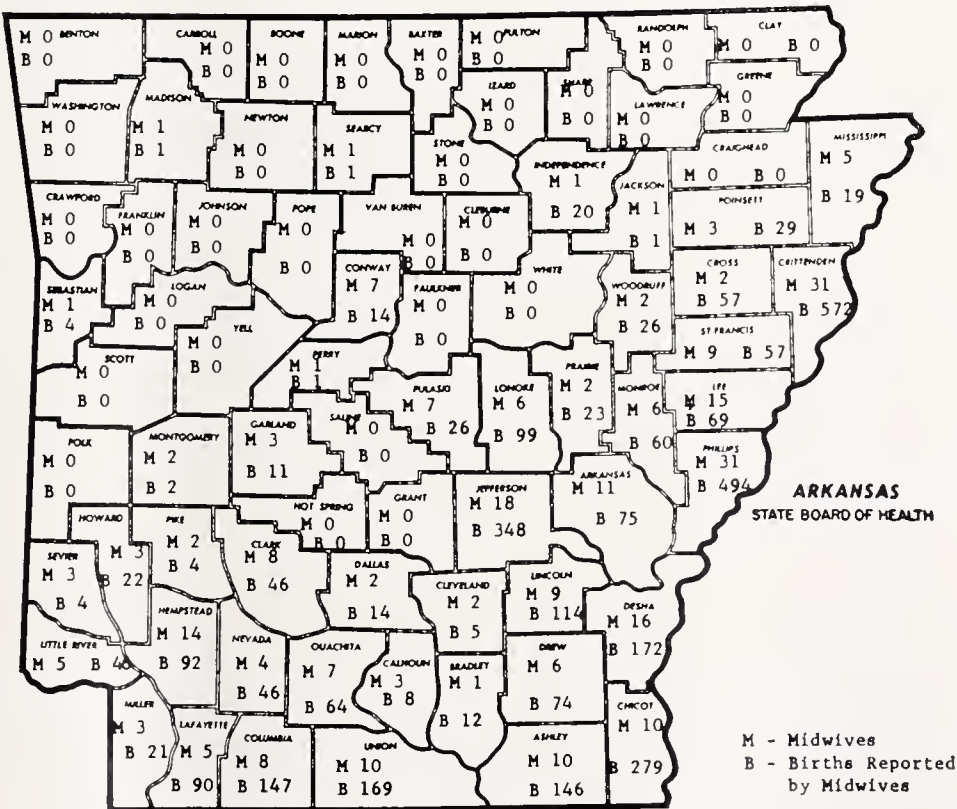
Twenty years earlier in 1941, 1,817 midwives reported 9,278 births. Only 40% of these midwives had annual permits, as compared with 92% in 1961, and these midwives reported 61% of the

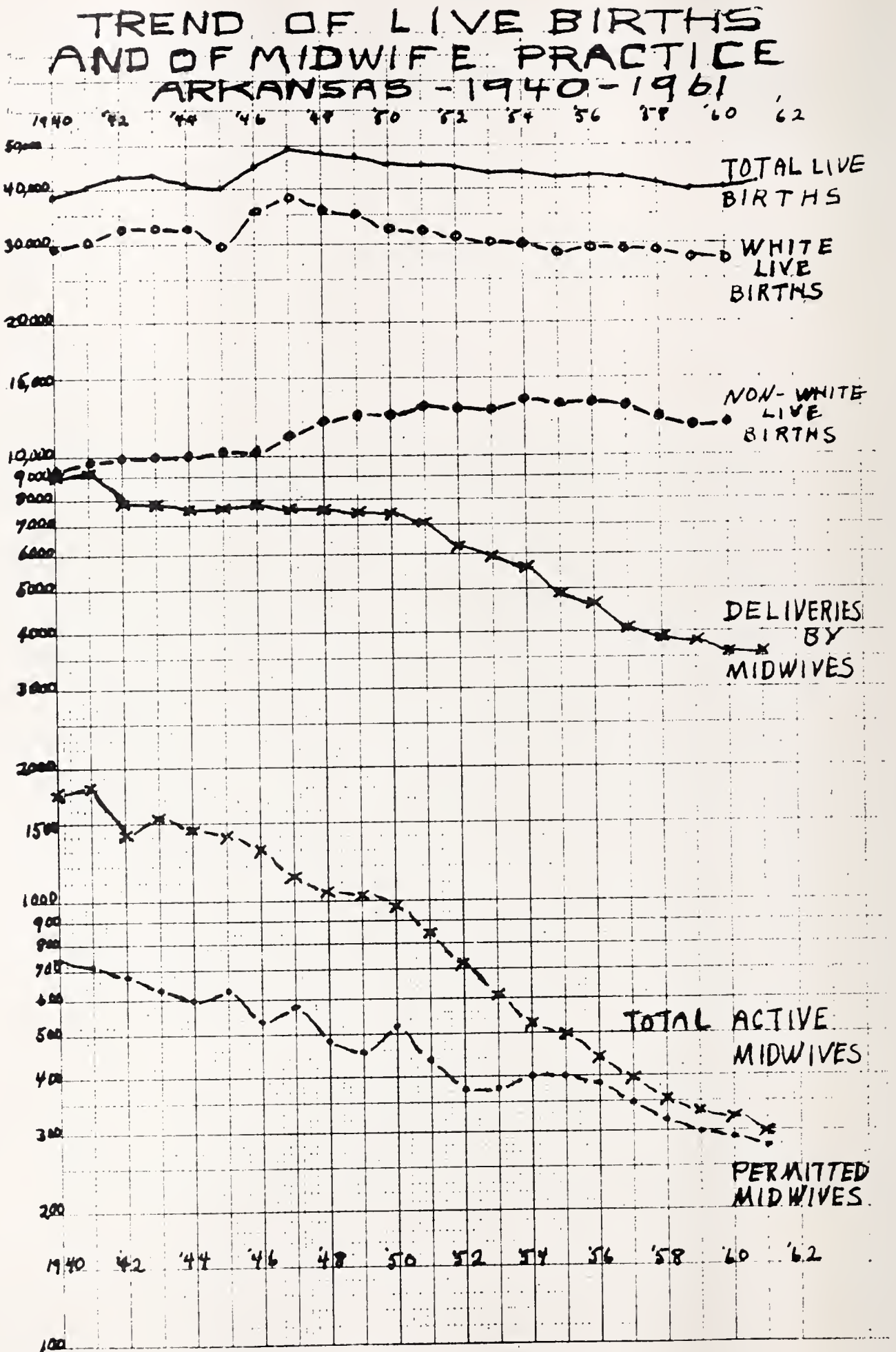
midwife deliveries, as compared with 98% in 1961. In 1961 the midwives with permits averaged nearly 13 deliveries each, those without permits about two each.

The chart shows the rate of decline in the number of midwives, and in the number of midwife deliveries, in Arkansas, since 1940. During this time the number of non-white live births has increased from 9,250 in 1940 to 13,543 in 1954, since when it has gone down slightly. Only a few

NUMBER OF MIDWIVES REPORTING AND BIRTHS REPORTED - BY COUNTY

ARKANSAS - 1961





white women are delivered by midwives. Disregarding these, we can estimate that in 1940, 98% of colored women were delivered by midwives, as compared with 30% in 1960.

The sharp decline in midwife deliveries in 1942 coincided with the United States entry in World War II. With this came an increase of opportunities for employment for colored women, and the initiation of medical care plans, through which the wives of service men in the lowest pay-grades could have Maternity and Infant Care provided by physicians at Government expense.

Beginning in 1945 the midwife control program of the State Board of Health was intensified, with special class work given and a rigid screening of midwives granted permits. In 1952 a State Board of Health regulation, having the force of law, was passed, making it a misdemeanor for a midwife without a permit to deliver a baby except in case of true emergency.

In order to obtain a midwife permit for the first time, a woman must attend monthly classes for a year, have a midwife bag set up according to

standard, and have demonstrated ability to follow the instructions given; as well as being not more than 50 years old and being able to read and write, and have a good reputation.

To have permits issued after the first, the midwife must retain her good reputation, report births promptly and properly, report all abnormalities at once to the patient's physician, or if she cannot reach him, to the Public Health Nurse, and deliver no patients, except in case of true emergency, for whom a physician has not signed a card saying that the patient was apparently safe for midwife delivery. The midwife must also give no drugs and do no internal examinations.

Of the 22 maternal deaths in 1961, midwives had been in attendance on three. In two cases death was due to a delayed post-partum hemorrhage, in one case, 12 days post-partum, to a pulmonary embolism.

The map shows the number of active midwives, and the number of births they reported, in the counties of Arkansas in 1961.



EDITORIAL

THE INTERN PROGRAM IS A FAILURE THIS YEAR

Alfred Kahn, Jr., M.D.

THE MISSION OF OUR MEDICAL training program in Arkansas does not end with graduation of medical students. This is phase one. The second part of the program is the training of house staff, and the third phase is to provide continuous good post-graduate medical training for graduate physicians.

The real aim of this program is to give better and better medical care to the Arkansas public; it is not just to provide training for the benefit of each young man or woman who wants to become a physician. Even the most casual glance at the multimillion dollar budget of the University Medical Center will readily demonstrate that the State of Arkansas is contributing a very large sum over and above tuition costs to the education of young physicians, pharmacists, and nurses. In return, Arkansas has the hope that the young men and women graduating from the Medical Center will stay and practice in Arkansas. However, this is a knotty problem that involves the individual's right to live and work as he sees fit; it also involves a rather difficult problem in education, namely, that the individual should have some latitude in getting his education at the institution that he feels is best suited for his needs. It is the hope of medical educators in this State that our well trained young physicians will stay to practice in this State because they see the need for competent physicians and because the opportunities for a varied, interesting and successful practice are great. Coercion to practice in Arkansas has been avoided.

Unfortunately, the system has broken down badly in some respects. Out of 74 graduating

from the University Medical Center, only 17 are staying to intern in Arkansas. One cannot be sure, but it is logical to expect that a large number of these physicians taking out-of-state internships will not return to Arkansas where there is a need for them.

Another unfortunate aspect of this situation is that the private Arkansas hospitals which train interns do not have enough interns to staff their hospitals. They are relying on foreign graduates. This creates not alone a local problem but a statewide problem, for these private hospitals often act as service centers for physicians in smaller communities; these physicians have problem cases that are time consuming and need to be referred elsewhere. From the individual intern's point of view this is a major failure because he does not get to meet other practicing Arkansas physicians with whom he may have mutual patients; he does not know the medical resources, or the lack of, in his neighboring cities. Actually, the biggest problem is that critically ill patients simply do not get quite as rapid care in big hospitals without interns.

The problem of good undergraduate training and the problem of post graduate training seem to have gotten considerable attention and good progress has been made. The vital intermediate step of the physicians training between graduating and practice is in many respects a failure in Arkansas. What are the more obvious reasons for this? Firstly, in contrast to 20 years or so ago, the hospitals are competing for interns, whereas in former years medical graduates worried whether or not they could get an internship. As a result,

some hospitals out of the state offered a good deal more money than was locally offered, and this was unquestionably the deciding factor in many cases. Our hospitals have to pay the "going wage" to interns—and for that matter why not, they are entitled to fair remuneration. A second reason stated by some is that better educational facilities are offered elsewhere; this is unquestionably a half-truth. A formally set out teaching program with fixed hours is desirable but with the wealth of clinical material and a reasonable number of practicing physicians, the interested intern has good opportunities through informal rounds. Actually, the overall intern teaching program in a private hospital is in a large measure limited by the quality of its physicians. Formal rounds with poor practitioners are of much less value than informal rounds with good practitioners—it is not just formalizing a program that means good intern training even though it is desirable. Lastly, the medical student has to be trained in a climate that sells him on the desirability of training and practicing in Arkansas; certainly this facet of our medical student indoctrination has not succeeded; a great effort must be made in this direction, and perhaps this selling of Arkansas is the most important thing that can be planned.

There are various undesirable coercive measures that can be used. For example, unless the medical student pays the total cost of his tuition,

in other words the current tuition plus the state's contribution to each student's tuition, he should be asked to agree that he will train and practice in Arkansas a certain number of years; in short, if the student accepts financial help from the state, he repays this through training and practice. Another method of securing more practitioners in Arkansas would be to grant a Bachelor of Medicine degree, not a Doctor of Medicine degree, until the student has completed one year of an approved internship in this State. Manifestly, coercive measures are undesirable and often they are partially self-defeating in that they discourage some students from going into medicine or applying for training in Arkansas. Such measures might be a necessity for the public's benefit if a voluntary program fails.

Some thoughts should be given to the merits of setting up an intern co-ordinator for the Arkansas hospitals. The specific duty would be to sell Arkansas medicine to the medical students and to assist and encourage the graduating medical students in taking their internship training in Arkansas. It goes without saying that the private hospitals will have to have a satisfactory teaching program and pay scale.

The weakest link in medical development in Arkansas this year is the lack of house staff in the private hospitals, which leads to poorer patient care and to fewer Arkansas physicians staying in Arkansas.

MEDICINE IN THE



Medical, Dental, Pharmacal Group Meets in Hot Springs

The 69th Annual Session of the Arkansas Medical, Dental and Pharmaceutical Association met June 6 through 8 in Hot Springs. Program chairman of the medical section of the convention was Dr. C. A. Lawlah of Pine Bluff.

In concurrent session with the men's association, the Woman's Auxiliary also met.

Stuttgart Physicians Attend Seminar

Physicians in the Stuttgart area attended a seminar May 31 on heart diseases devoted particularly to heart attacks and congestive heart failure.

Visiting lecturer was Dr. James Taylor, professor of medicine at the University of Arkansas Medical School at Little Rock.

The seminar was one of a series made possible by a grant from the Lippincott Company. It was sponsored by the Arkansas Academy of General Practice.

REPORT ON ACTIONS OF THE HOUSE OF DELEGATES AMERICAN MEDICAL ASSOCIATION 111th ANNUAL MEETING JUNE 24-28, 1962 CHICAGO

Chicago, June 28 — Health care for the aged, medical discipline, composition of the AMA Board of Trustees, a study of the American Board of Abdominal Surgery, relations with the American College of Surgeons and voluntary health insurance were among the major subjects acted upon by the House of Delegates at the American Medical Association's 111th Annual Meeting held June 24-28 in Chicago.

Dr. Edward R. Annis of Miami, Florida, chairman of the AMA National Speakers Bureau and well known spokesman in the campaign against

the King-Anderson Bill, was chosen president-elect of the association.

The AMA 1962 Distinguished Service Award was voted to Dr. Russell L. Cecil, 81, of New York City, senior editor of the Textbook of Medicine and one of the nation's leading researchers in the field of arthritis.

Final registration figures at the meeting reached a total of 42,643, including 14,092 physicians.

Health Care for the Aged

The House received 17 resolutions expressing full support of the Kerr-Mills program and firm opposition to the King-Anderson type of legislation.

Medical Discipline

To implement one of the major recommendations made by the Medical Disciplinary Committee at the June, 1961, meeting in New York, the House approved a change in the Bylaws.

AMA Board of Trustees

The House approved a report of the Ad Hoc Committee on the Board of Trustees which recommended that the size of the Board be increased from 11 members to 15 members.

American Board of Abdominal Surgery

A study report from the Council on Medical Education and Hospitals, recommending that recognition should not be granted to the American Board of Abdominal Surgery as a specialty board, was approved by the House.

American College of Surgeons

In considering a Board report and four resolutions involving surgical assistants and relations between the AMA and the American College of Surgeons, the House declared that the adoption and interpretation of the Principles of Medical

Ethics is the prerogative and duty of the American Medical Association.

Voluntary Health Insurance

The House accepted a Council on Medical Service report on the utilization of state and federal tax funds to provide voluntary prepayment health insurance protection to assist the aged in meeting the costs of health care services.

From the Executive
Vice President's Office
American Medical Association

New Clinic Under Construction

A new clinic, to be known as the Forrest City Clinic, is now under construction in Forrest City. The clinic will be occupied by Dr. George McPhail and Dr. Herbert Hollis and will contain 12 examination rooms, two waiting rooms, offices, X-ray and laboratories.

Crossett Health Center Accredited

Crossett Health Center has been granted a Certificate of Accreditation for a three-year period by the Joint Commission of Accreditation of Hospitals.

Med Center Holds Preceptorship Day

The University of Arkansas Medical Center held its 4th Annual Preceptorship Day May 24 in cooperation with a number of practicing physicians in Arkansas.

Preceptorship Day was initiated in conjunction with representatives of the Arkansas Medical Society in order to focus student attention on the principles of medical ethics prior to their going on preceptorship. Each summer, junior students spend six weeks with physicians in Arkansas communities assisting in treatment of patients.

Dr. John T. Riffin, associate dean and chairman of the preceptorship day program, presided at the meeting, and Dr. Winston K. Shorey, dean of the school of medicine, welcomed visitors.

Auxiliary President Urges Members To Aim High

Physicians' wives must broaden the scope of their education and understanding if they are to know the satisfaction of meeting responsibilities to families, to communities and to the future, the new president of the Woman's Auxiliary to the

American Medical Association said in her inaugural address.

In assuming the presidency, Mrs. William G. Thuss, Birmingham, Ala., urged that members support medical education, promotion of safety education for all age groups, mental health, physical fitness programs in schools, campaigns against quackery, recruitment of outstanding young people into medical careers, rural health and international health activities.

Mrs. Thuss succeeds Mrs. Harlan English, Danville, Ill. The new president-elect is Mrs. C. Rodney Stoltz, Watertown, S.D.

Business sessions were devoted to state and national reports, discussions and speeches by medical leaders and AMA staff personnel.

Registration for the meeting totalled 1,191.

4,578 Blood Banks Described in New Directory

The Joint Blood Council, Inc., of Washington, D.C. has released a new Directory of Blood Transfusion Facilities and Services in which are listed 4,578 blood handling institutions including hospitals, Red Cross and community blood banks that collected over six million units during 1961. The directory contains many valuable details regarding blood banks and may be obtained at \$5.00 prepaid from the Joint Blood Council, 1500 Massachusetts Avenue, N.W., Washington 5, D.C.

Lee Clinic Holds Open House

About 200 visitors attended the open house of the new Lee Clinic in Stamps June 17. The new clinic houses the office of Dr. Willis J. Lee.

The Month in Washington

The American Medical Association endorsed in principle the Kennedy Administration's proposed mass immunization program, but urged three important changes.

Dr. F. J. L. Blasingame, executive vice president of AMA, outlined the AMA's position in a letter to Rep. Oren Harris (D., Ark.), chairman of the House Commerce Committee which held hearings on the Administration legislation (H.R. 10541). Dr. Blasingame said:

"The American Medical Association endorses the principle of H.R. 10541 as applied to the four infectious diseases named in the bill—poliomyelitis, diphtheria, whooping cough and tetanus—

but urges that: (1) the bill be limited to the four named diseases; (2) the bill be financed as a grant-in-aid program with the states participating on a matching formula basis; and (3) the programs be administered by State Health Departments, preserving the well-established and accepted relationships between the United States Public Health Service and the States in matters pertaining to health."

The Committee accepted two of the changes proposed by the AMA—that the program be limited to the four specified diseases and administered by State Health Departments. The bill then was passed by the House and sent to the Senate where it promptly received approval of the Senate Labor and Public Welfare Committee.

The bill would authorize federal grants to states and their political subdivisions for "intensive community vaccination" programs against the four diseases during the next three fiscal years. It would authorize \$14 million for grants in the first year of operation and \$11 million annually for the following two years. The federal funds would be used to purchase vaccine for children under age five, and for salaries and related expenses of the state and local immunization programs.

"Our House of Delegates has on many occasions adopted policy resolutions urging immunization against polio, tetanus, and other communicable diseases for which vaccine exist," Dr. Blasingame said. "Although traditionally it has been the policy of the American Medical Association to urge that the best means of administering vaccines is in the doctor's office, with the family physician vaccinating his patients, we also have recognized that intensive immunization against communicable disease is a public health matter."

* * *

The Public Health Service called on physicians to cooperate with community health officials and voluntary health agencies in launching in September a campaign to vaccinate pregnant women, persons suffering chronic debilitating diseases and the general population over age 45 against Asian influenza.

Surgeon General Luther L. Terry of the PHS urged that as many persons in these groups as possible be protected with one shot, or two if they are prescribed, before winter.

The call for the vaccination campaign was issued after a special advisory group warned that

another wave of Asian influenza is due in the United States. The committee said that while accurate predictions are difficult, recent and past patterns of influenza A2 (known as the Asian strain) indicate it probably will occur throughout the nation this winter. The committee said indications were that influenza B would be infrequent.

The committee also recommended that serious consideration be given to immunizing persons in medical and health services, public safety, public utilities, transportation, education and communications fields. Dr. Terry said large scale immunization should be encouraged also in other industries and large institutions where absenteeism is of particular concern.

Previous campaigns included all persons over 65, but the age limit was lowered after study of past outbreaks.

Manufacturers of influenza vaccine were asked to estimate the amount of vaccine that would be needed and to have an adequate supply ready.

* * *

The Federal Radiation Council said that indications are that radiation received by the average American from nuclear testing is "considerably less than the exposure from natural sources."

But, in a major policy statement, the Council conceded that there is little scientific data to back up this conclusion and that it is difficult to be precise in this field.

"While a considerable body of information has been accumulated on the effects of radiation on animals and man, the possible effects of low doses delivered at low dose rates are insufficiently known to permit firm conclusions about the extremely low exposures resulting from fallout," the Council said in a report, "Health Implications of Fallout from Nuclear Weapons Testing Through 1961."

"We cannot say with certainty what health hazards are caused by fallout from nuclear testing. We expect there will be some genetic effect; other effects such as leukemia and cancer are more speculative and may not occur at all. We can observe that, compared to the number of these same adverse biological effects occurring wholly apart from testing, the additional cases that might be caused by testing are a very small quantity. We conclude that nuclear testing through 1961 has increased by small amounts the normal risks of adverse health effects."

The report said radiation doses from all nuclear tests through 1961 "have generally been a small fraction" of the amount received from natural radioactive sources such as radium in the earth's crust, cosmic radiation from space, and carbon-14 and potassium-40 in the human body.

Basing its estimates on measurements of radioactive particles in air, rain, soil, water supplies, food and human bodies, the Council said the dose from all atomic tests through 1961 was from one-tenth to one-quarter of the amount received from the natural background.

Epileptics are Employable

Eighty to 90 percent of the Nation's 1,500,000 epileptics are capable of normal employment, and most epileptics can and do keep their condition secret and pass in public as "normal."

These points are brought out by George N. Wright, Ph.D., Program Director of the National Epilepsy League, in an introduction to a new book, just published by the Office of Vocational Rehabilitation, in the U.S. Department of Health, Education, and Welfare.

The book is entitled "Total Rehabilitation of Epileptics," with the sub-title, "Gateway to Employment." It is designed to help epileptics overcome the social, psychological, and vocational handicaps inherent in the disorder.

AMA Arkansas Breakfast

The Doctors of Arkansas put the State's "Best Foot Forward" on June 25th as some 280 people, including the officers and delegates of the American Medical Association, were honored at the Arkansas Breakfast in the State Ballroom of the Palmer House in Chicago. For the fifth straight year the Arkansas Medical Society has sponsored the Breakfast, which has grown in prestige as the "unofficial opening" of the American Medical Association's Annual Meeting. This year funds for the affair were raised by individual contributions of doctors throughout the State. Dr. L. E. Drewery, of Camden, served as Chairman of the fund raising project.

Upon arriving at the 7:30 A.M. Breakfast, each guest was presented with a badge in the shape of Arkansas with his name and state printed on it. Ladies of the Auxiliary served as greeters for the early hour. At the individual tables throughout the spacious ballroom, each place setting featured an attractive brochure on Arkansas and an ash

tray especially made for the event and presented by Mrs. Jack Carnes, owner of the Camark Pottery.

Immediately above the Speaker's stand at the long head table was a huge blue banner in the shape of Arkansas. Large silvery glittered letters spelled out "Arkansas Welcomes You." Special guests were introduced in a unique manner by Arkansas Delegates, Dr. James M. Kolb and Dr. Jack Kennedy. Representing the AMA at the head table were the President and President-elect, the Executive Vice President and the Assistant Executive Vice President, the Speaker and Vice-speaker of the House of Delegates, the nine Trustees, and the President of the Woman's Auxiliary of the American Medical Association. Representing the Arkansas Medical Society were the President and President-elect, President of the Woman's Auxiliary, Sponsor of the Arkansas Faith Festival, the Executive Vice President and the two official Delegates. The speaker for the Breakfast and his wife were also at the head table.

Dr. H. King Wade Jr., President of the Arkansas Medical Society, was Master of Ceremonies. After the head table guests had marched on stage, the group sang "God Bless America," led by Bill Shelton. The Invocation was given by Dr. L. H. McDaniel.

Following breakfast, Dr. Wade welcomed everyone present to the Arkansas Breakfast. Dr. Wade suggested that he wanted everyone there to leave well entertained, well inspired, and well nourished. Dr. Wade drew a burst of applause when he stated, "We are proud of many things in Arkansas, and particularly at this time, of our great congressional delegation headed by the friend of every doctor, Congressman Wilbur Mills, Chairman of the Ways and Means Committee of the Congress."

The Master of Ceremonies then introduced Dr. R. B. Robins, a Trustee of the AMA and a past Vice-president, as "Doctor Arkansas," and asked that he make a presentation to Dr. George Fister, President-elect of the AMA. The presentation was made by Dr. Robins on behalf of Dr. J. H. McCurry who is Secretary and Founder of the Fifty Year Club of American Medicine. Dr. McCurry is from Cash, Arkansas.

Dr. Robins then cleverly introduced Mary Shelton, the entertainer, as one of his patients. Mrs. Shelton is no stranger to medical audiences as she entertained at the Arkansas Breakfast last

year in New York, for the American Academy of General Practice, and numerous State Societies. She started her program with a medley of two Arkansas songs, one composed by the late Jack Carnes, and the other written by Mary and Bill Shelton, manager of the Camden Chamber of Commerce and a member of the State's "Arkansas Ambassador Speaker's Bureau." During the music, beautiful color slides, furnished by the Arkansas Publicity and Parks Commission were projected on a large screen above the stage.

Mary then presented an original skit set to music and written especially for the Breakfast, in which she predicted that television shows would swing from Westerns to Medicine during the coming season. A few of the new shows introduced was one sponsored by Equanil and Miltown entitled, "Meet the Pressure." Another, co-hosted by Merazine and Dramamine, was the new series, "Dizzyland." Mary also predicted the "Flintstones" would be replaced by Gallstones, and "Rawhide" would be treated with Caladryl. During the musical monolog, Mary made frequent references to prominent doctors from around the country who were in attendance. At one point she was joined on stage by Dr. Albert Ritt, President-elect, and Mr. Mac Cahal, Executive Director of the American Academy of General Practice. They presented "Medivac", the new robot computer that answered some lively questions from the audience. Dr. Lafe Ludwig, of Los Angeles, also joined Mary for some humorous observations of Medical TV.

For her closing number, she delighted the audience with a medley of songs from "The Sound of Music," which set the scene for the inspiring address which was to follow.

"Major Challenges to American Foreign Policy" was the subject of the address given by Mr. Herbert V. Prochnow, famous author and President of the First National Bank of Chicago. Mr. Prochnow is married to the former Laura Stinson of Camden, Arkansas.

Mr. Prochnow's address was of keen interest to the attentive audience who listened carefully as he discussed the economic and social order of the world for the past two decades. Mr. Prochnow stated that in his opinion the three most far-reaching developments of our time are:

"First — The rise of communism with its threat to the foundations of our society;

Second—The rise of a vast world of one billion hungry men and women in the new nations who are struggling to create political stability out of chaos and economic growth out of poverty; and

Third—The rise of Western Europe to a position of potential power so great that it may with the United States now decisively influence the course of world events."

Mr. Prochnow concluded his speech by stating, "The United States has come to the pinnacle of world power largely because her people have had the opportunity to develop this nation with its vast resources under a government and a Constitution that encourage initiative, enterprise, industry, thrift and inventive genius. They have cherished and held secure the blessings of liberty, and they have recognized the dignity of man.

"Two thousand years ago a question was asked which has challenged men down through the centuries. That question was, 'For what will it profit his own soul?' We may well ask today, 'For what will it profit a nation to become the greatest economic power in history, if its people lose the qualities of their greatness—self-discipline, self-reliance, industry, thrift, courage, character, faith?' This is not a crisis of economic power. We have the potential power. This is not a crisis of the inward spirit of man. The question is 'have we as a people the spirit of greatness?' "

More Seniors Enroll This Year For Army Medical Training

One hundred and two college seniors are currently enrolled in medical schools throughout the United States and Puerto Rico under the Army Senior Medical Student Program, according to Lt. Col. David M. Tormey, MC, Chief of the Officer Procurement Branch of the Army Surgeon General's Office.

The program, which has increased by 34 students since last year, provides full pay and allowances to medical students in their senior year, and also furnishes the Army Medical Service with potential career officers.

PHYSICIAN SUPPLY AND THE TALENT POOL: A NATIONAL PROBLEM

A century ago when a talented young man wished to undertake a profession, he had three major choices: medicine, law or theology. Today the number of choices has increased more than a hundredfold. The socio-cultural, economic, scientific and other reasons for the changing pat-

terns of career choices among the nation's talented youth have been discussed by dozens of experts. Wolfe, for example, noted that in 1861-1880 28% of all college graduates entered the practice of medicine. By 1951-55 this figure had shrunk to 2%. Whatever the reasons used to explain this change, the fact of the change cannot be denied.

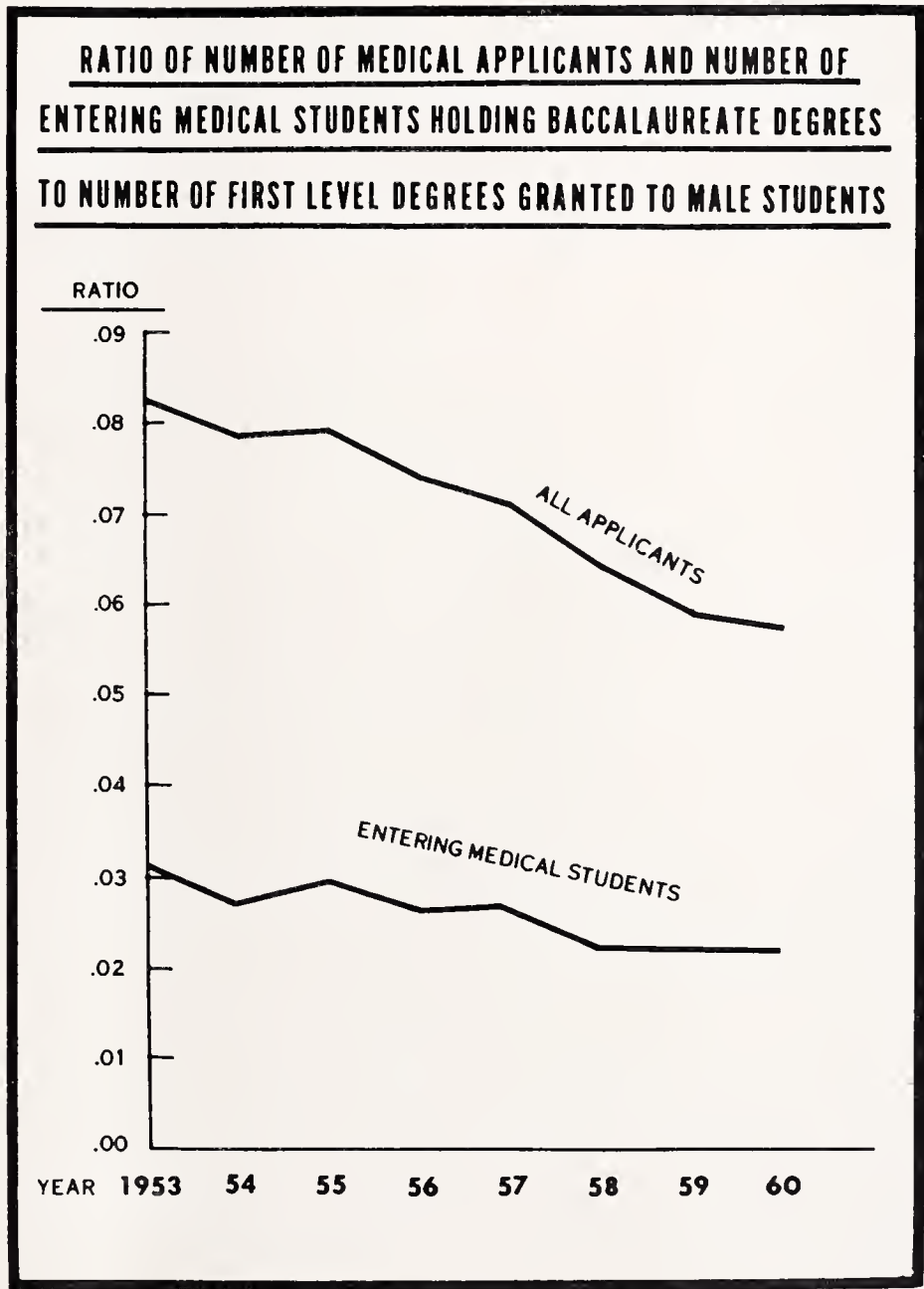


FIG. 1.

Submitted by the Division of Operational Studies of the AAMC. Source of information will be furnished on request.

The purpose of the present Datagram is to provide a current reading of where medicine stands in relation to its share of the talent pool and to show the trends in sharing this pool over the past decade.

The primary talent pool from which medical students are drawn are those young men and women who are graduated from a college or university with a baccalaureate degree. In the past decade, approximately 75% of all students enter-

ing medical school have reached this level of academic achievement. If one compares two principal indices of interest in the study of medicine, namely, the total number of applicants to medical school and the number of students entering medical school with a baccalaureate degree with the number of first-level baccalaureate degrees granted to male students in a given year—95% of medical students are males—it is possible to construct an index of medicine's relation to the national talent pool. Figure 1 portrays the data of this comparison in ratio form.

What is happening as far as medicine's share of the talent pool is clear-cut. If the total number of applicants to medical school is used as an index of interest in the study of medicine, Figure 1 indicates that the ratio between this index and the number of baccalaureate degrees granted to males has dropped from .083 in 1953 to .059 in 1960. This ratio must decline since the total number of applicants to medical school has dropped in recent years while the number of baccalaureate degrees has risen sharply.

With respect to the number of students entering medical school with a baccalaureate degree, the picture is somewhat more complicated and yields a less precipitous decrease. First, medical schools have, in recent years, accepted an increasing proportion of total applicants. In 1953, 46% of all applicants were accepted. By 1961, 59% of all applicants were being accepted. Given the drop in total applicants, it has been necessary to accept a larger proportion of applicants to fill the same number of places in medical schools. Secondly, medical educators have given increased attention to the selection process and therefore have been able to maintain the proportion of students holding baccalaureate degrees in face of the drop in applicants. Thus the number of students entering United States medical schools with baccalaureate degrees has increased each year but *at a slower* rate than the overall number of baccalaureate degrees granted.

The trend of medicine attracting a smaller share of the pool of the nation's talented youth has continued throughout this past decade. This ratio will continue to decline until the greatly needed expansion in medical school enrollments becomes possible by construction that will expand existing facilities and create new facilities.

THINGS TO COME

New York University Offers Symposia

A three-day full-time course on Atherosclerosis and Hypertension will be offered by the New York University Medical Center from November 8-10.

New York University Medical Center will also offer a full-time four-day course on Surgical Rehabilitation of Arthritic Deformities from November 13-16.

For application and further information, write to: Office of the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16, N.Y.

New York University Post-Graduate Courses

The New York University Post-Graduate Medical School offers the following courses for the fall session:

Surgery of the Cornea

A full-time course of five days duration, September 10 through 14, 1962. Given under the direction of Dr. Ramon Castroviejo. Tuition: \$250.

Gynecological Endocrinology

A full-time course of five days duration, October 5, 1962. Given under the direction of Dr. Herbert S. Kupperman. Tuition: \$140.

For application and further information, write to: Office of the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16, N.Y.

Eighth Annual Hahnemann Symposium

The Eighth Hahnemann Symposium, sponsored by the Hahnemann Medical College and Hospital, will be held December 12 to 14, 1962, in the Sheraton Hotel in Philadelphia. The symposium will be on "Medical Considerations in the Surgical Patient." For further information, contact Wilbur N. Oaks, M.D., Director, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia 2, Pennsylvania.

Clinical Symposium on Hypertension

The University of Texas Postgraduate School of Medicine will sponsor a Clinical Symposium on "The Practical Treatment of Hypertension," September 20, 21 and 22, 1962. The Symposium will be held in the Auditorium of The University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, Texas. For further information write: Office of the Dean, The University of Texas Postgraduate School of Medicine, 102 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

Conference to Be Held at Tumor Institute

"Tumors of the Skin" will be the subject of the Clinical Conference to be held at the University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, Texas, November 9 and 10, 1962. Papers will be presented by twenty scientists in the fields of etiology, epidemiology, diagnosis and treatment of cancer of the skin.

Postgraduate Symposium on Endocrinology

The Department of Pediatrics, University of Oklahoma Medical Center will hold a postgraduate symposium on endocrinology of children and young adults September 26, 27, and 28, 1962. For further information write Office of Postgraduate Education, University of Oklahoma Medical Center, 801 N.E. 13th Street, Oklahoma City 4, Oklahoma.

The AMA National Congress on Mental Illness and Health

The American Medical Association will hold its first National Congress on Mental Illness and Health in Chicago, October 4-6.

The purpose of this Congress, held with the cooperation of the American Psychiatric Association and the support of the National Association for Mental Health, is to implement the broad, new mental health program developed by the AMA's Council on Mental Health. More detailed information on the Congress and copies of the AMA mental health program can be obtained from the Council on Mental Health, American Medical Association, 535 N. Dearborn Street, Chicago 10, Illinois.



OBITUARY

Dr. C. C. Townsend

DR. C. C. TOWNSEND, a Walnut Ridge physician for more than 60 years, died June 6 at his home in Walnut Ridge. He was 86.

Dr. Townsend was a member of the American Medical Association, the Arkansas Medical Society and was a past president of the Lawrence County Medical Society. He was a Missionary Baptist.

* * * *

Dr. J. B. Woods

DR. J. B. WOODS, of Little Rock, a practicing physician for 31 years, died May 14 in Alexander.

He was a graduate of Talledega College in Talledega, Alabama, and Meharry Medical College in Nashville, Tennessee. He practiced in Hot Springs until World War II, during which he served in Army Base Hospitals for four years. After the war he practiced in Little Rock. He is survived by his widow.

* * * *

Dr. John Herndon Bohannon

DR. JOHN HERNDON BOHANNON, aged 82, of Berryville, a prominent Carroll County physician who retired in 1961, died Friday at his home.

He was a physician for the Selective Service Board of Carroll County, the County Health officer and president of the County Medical Association.

He was graduated from Physicians and Surgeons College in Little Rock in 1910 and began his practice in Huntsville. He had been in Berryville since 1915.

He was a member of the Carroll County Medical Society, the American Medical Association, and the Arkansas Medical Society.

* * * *

Dr. William Thomas Lowe

DR. WILLIAM THOMAS LOWE, 77, a retired Pine Bluff physician and surgeon, died May 28 in Pine Bluff.

Dr. Lowe was chief of staff for the Davis Hos-

pital in Pine Bluff for a number of years and was past president of the Jefferson County Medical Society. He was a member of the State Medical Board of Examiners. He attended school at Monticello and graduated from Vanderbilt University.

He interned at Poly Clinic in New York and began practice in 1909, retiring in 1950.

In 1960, he received an honorary life membership to the Southern Medical Association, the first physician to receive that honor.



PERSONAL AND NEWS ITEMS

Dr. Carruthers Presents Paper

Dr. F. Walter Carruthers of Little Rock, Arkansas, recently attended the Sixth International Congress of Orthopedic and Traumatic Surgery Meeting in Puebla, Mexico, as a Guest Speaker.

He presented a paper on: "Simple and Complicated Fractures of the Pelvic Bones". It was illustrated with Lantern Slides.

Texarkana Lions See Film on King-Anderson Bill

A film presentation of the doctors' case against the King-Anderson medicare bill was shown to the Texarkana, Arkansas Lions Club recently in a program introduced by Dr. William Hibbitts.

The film featured a discussion by Dr. Edward R. Annis.

Dr. Dickinson Member of Abdominal Surgeons Society

Dr. R. B. "Bill" Dickinson of De Queen has been admitted to membership in the American Society of Abdominal Surgeons.

Dr. Britt Gets Mayo Award

Dr. Wilbur F. Britt, Jr., a fellow in neurologic surgery in the Mayo Foundation, Rochester, Minnesota, was recipient of the Winchell McK. Craig Award for outstanding performance as a fellow in neurosurgery at a special convocation at the Mayo Foundation House, Rochester, on May 25, 1962.

Dr. Reagan Speaks at T.B. Meeting

Dr. Paul Reagan, director of the Division of TB Control, State Board of Health, was guest speaker at the May 22 Annual Meeting of the Clark County Tuberculosis Association in Arkadelphia.

Dr. Lanford Speaks at West Memphis

Dr. H. G. Lanford of West Memphis was a recent speaker at a meeting of the West Memphis Kiwanis Club. In his talk, Dr. Lanford stated that he was definitely opposed to the King-Anderson Bill, designed to give medical care to the aged.

Doctors to Open Practice in New Rogers Clinic

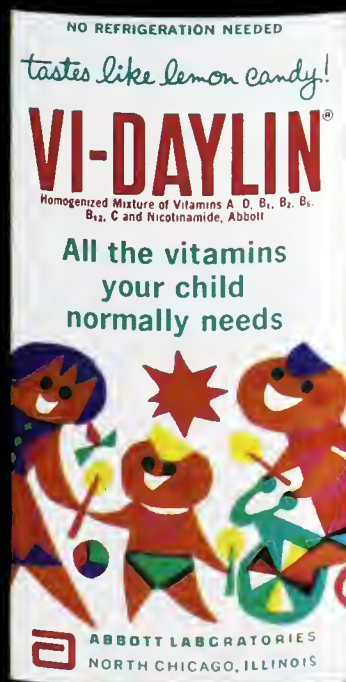
Dr. John Clower and Dr. Charles Chalfant, who have just finished their military service in public health work, recently opened practice in a new, ultra-modern clinic in Rogers, Arkansas. The building is located near Rogers Memorial hospital.

Dr. Applegate Clashes With Union Official

Dr. Stanley Applegate of Springdale, the American Medical Association's official spokesman for that area recently met Bill Becker, secretary-treasurer of the state's AFL-CIO in a debate on



How do the lemons get in the Vi-Daylin?



Perhaps this should be cleared up once and for all. There are *no* lemons in Vi-Daylin. If you've ever tasted Vi-Daylin, this might surprise you. Certainly, it would surprise the youngsters. To most of them, Vi-Daylin is liquid lemon candy, and that's *that*. But if it's deception, it's sensible deception. You never have to badger the kids into taking their vitamins. Nice to know, too, that this matchless matching of candy essence and color elegance can be found in all the forms and formulas of Vi-Daylin.

VI-DAYLIN—Vitamins A, D, B₁, B₂, B₆, B₁₂, C, and Nicotinamide, Abbott; VIDAYLIN-M—Homogenized Mixture of Vitamins with Minerals, Abbott; VI-DAYLIN-T—High Potency Multivitamins, Abbott.

Remember, there are *three* liquid formulas: Vi-Daylin, ViDaylin-M® (with minerals), and ViDaylin-T® (therapeutic). And if patients get a little owly and won't touch *anything* in a spoon, you can give them the new Chewable (please see back of this page).

Each delicious, 5-cc. teaspoonful of Vi-Daylin supplies the following proportions of the Minimum Daily Requirements of:

	MDR (Children)	MDR (Infants)
Vitamin A — 0.9 mg. (3000 units)	1	2
Vitamin D — 10 mcg. (400 units)	1	1
Thiamine HCl (B ₁) — 1.5 mg.	2	6
Riboflavin (B ₂) — 1.2 mg.	1½	2
Ascorbic Acid (C) — 50 mg.	2½	5
Nicotinamide — 10 mg.	1½	2

Also supplies cyanocobalamin (B₁₂) 3 mcg. and pyridoxine Hydrochloride 1 mg.

Abbott Laboratories
North Chicago, Illinois

Gentlemen,

My family enjoys your chewable vitamins. It seems like we can not get enough of your vitamins. My sister enjoys your vitamins so much that she ask for more but cannot have no more. I like them because my mother does not have to worry about scolding us when taking it. Its good because you don't have no worries about something falling on the floor. If you kept on making these vitamins all the worlds children would be happy again. Now I would like to know whether I may have any information on the Middle West. You see my class and I are studying it. So if the information can be given I thank you very much.

"...all the worlds children would be happy again."

(an unsolicited testimonial from an actual letter)



the King-Anderson Bill. They met June 8 in the first of a series of debates entitled "Controversy" sponsored by the Fayetteville Junior Chamber of Commerce.

Dr. Wade Speaks to Hot Springs Kiwanians

Dr. H. King Wade, Jr., president of the Arkansas Medical Society, recently addressed the weekly meeting of the Hot Springs Kiwanis Club at the Arlington Hotel. The subject of his talk was the comparison of the King-Anderson Bill to the Kerr-Mills Bill. Dr. Wade stated that the Kerr-Mills Act now in effect is far superior to the King-Anderson medicare proposal.

General Practice Certificate Awarded

Dr. James R. Callaway, a resident at the University of Arkansas Medical Center, recently received a certificate of training in general practice. A year ago Dr. Callaway received a \$1,000 award under a scholarship program established in 1952 by the American Academy of General Practice of Kansas City.

The certificate was presented to Dr. John Busby of the Arkansas Academy. Funds for the Academy's program are furnished by Mead Johnson

Laboratories. Nineteen other young physicians are taking residencies under this same program, and 20 more will start training in July.

Dr. Callaway plans to enter general practice in Clarksville in association with Dr. James M. Kolb, Sr.

Dr. Holt Blasts Medical Care Bill

In a speech to the Hope Kiwanis Club recently, Dr. Forney Holt of Hope blasted the controversial King-Anderson bill. Dr. Holt stated that "Kennedy Political Medicine" is not needed by the American public and that no amount of Madison Square grandstanding by the president could alter his opinion on the subject.

He referred to the Kerr-Mills act as the lesser of two evils in government medical care plans.

CORRECTION

In the June issue of the Journal of the Arkansas Medical Society Dr. Wilbur G. Lawson's name was mistakenly used as speaker at a meeting in Fort Smith, Arkansas. The Journal wishes to apologize to Dr. Lawson for this error.

ANSWER—Electrocardiogram of the Month

RATE: A: 200

V: 100

RHYTHM: Atrial tachycardia with 2: 1 block

PR: —sec.

QRS: .08 sec. QT: .32 sec.

INTERPRETATION: Abnormal. Atrial tachycardia with 2:1 block. Residuals old anterior infarction. Left ventricular hypertrophy.

COMMENT: This elderly patient has arteriosclerotic heart disease with an episode suggestive of previous myocardial infarction. While hospitalized for observation of chronic congestive failure complicated by multiple pulmonary infarctions, an attempt was made to increase his digitalis dosage. This tracing was recorded shortly thereafter and shows the occurrence of paroxysmal atrial tachycardia with 2:1 block. This arrhythmia is being encountered rather frequently at the present time, perhaps due to the effective oral diuretics which are now available. The arrhythmia was soon terminated by cessation of digitalis therapy and administration of potassium.

ANSWER—What Is Your Diagnosis?

12-66-61 46 year old white female

No pertinent symptoms.

DIAGNOSIS: Hemangioma of the skull.

X-RAY FEATURES: There is a typical approximately rounded lytic defect in the parietal area with a scalloped peripheral margin and generally a radiating pattern of trabeculae within it. This is a benign lesion of no clinical significance but must be differentiated from other destructive bone lesions such as metastatic disease.



PROCEEDINGS OF SOCIETIES

Jefferson County Medical Society Endorses Water Fluoridation and Vaccine Policy

The Jefferson County Medical Society at the June meeting decided on unqualified endorsement to the addition of fluorides to Pine Bluff's city water. The decision was announced June 9 by Dr. M. R. Wirthlin, county health officer.

The Society also has announced a policy on oral polio vaccine that calls for its use only for community-wide immunization and not on an individual basis. The new policy is an endorsement of the position set by the Arkansas Medical Society in May.

Ouachita County

The Ouachita County Medical Society met in regular monthly dinner session Tuesday night, July 3, 1962, at the Camden Hotel, Camden, Arkansas.

A round table discussion on psychiatric problems in general practice was conducted by Dr. Russell G. Walling, psychiatrist, of Texarkana.

A Public Relations-Grievance Committee for Ouachita County was appointed with Dr. James Guthrie, Camden, Chairman; Dr. Tom Meek, Camden; and Dr. Henry Hearnberger, Stephens, Arkansas.



NEW MEMBERS

DR. JAMES L. HAGLER is a new member of the Pulaski County Medical Society. He is a native of Lockesburg, Arkansas, and he received his preliminary education from the University of Arkansas. His M.D. degree was received from the University of Arkansas in 1955. Dr. Hagler's specialty is obstetrics and gynecology and his office is located at 5800 West Markham in Little Rock, Arkansas.

A new member of Pulaski County Medical Society is DR. CLARK B. PROCTOR. A native of Ames, Iowa, he received his preliminary education from Iowa State University. He received his M.D. degree from the University of Iowa in 1932. Dr. Proctor served in the United States Air Force from 1933 until 1960. His office is now located at the Veterans Administration Hospital, North Little Rock, Arkansas.

* * * *

Pulaski County Medical Society announces that DR. JOE PAT STANLEY has been accepted for membership. He is a native of Gravelly, Arkansas, and he received his preliminary education from Hendrix College. His M.D. degree was received from the University of Arkansas in 1955. Dr. Stanley's specialty is internal medicine and his office is located at Pike Plaza Shopping Center, North Little Rock, Arkansas.

DR. HERBERT H. HOLLIS is a new member of St. Francis County Medical Society. A native of Knoxville, Tennessee, he received his preliminary education at Florence State Teachers College, Florence, Alabama. His M.D. degree was received from the University of Tennessee Medical College in 1959. Dr. Hollis has his office at 317 Washington Street in Forrest City, Arkansas.

* * * *

DR. JAMES D. ARMSTRONG is a new member of Little River County Medical Society. A native of Little Rock, he received his preliminary education at Hendrix College in Conway, Arkansas. His M.D. degree was received from the University of Arkansas Medical School in 1961. Dr. Armstrong practiced at Hillcrest Medical Center, Tulsa, Oklahoma, from 1961 until 1962. He now has his office in Ashdown, Arkansas.



BOOK REVIEWS

PRACTICAL ANESTHESIOLOGY by Joseph F. Artusio, Jr., M.D., Professor of Anesthesiology in Surgery and Professor of Anesthesiology in Obstetrics and Gynecology, Cornell University Medical College, New York, N.Y.; Anesthesiologist-in-Chief, The New York Hospital-Cornell Medical Center, New York, N. Y., and Valentino D. B. Mazza, M.D., Professor and Chairman of the Department of Anesthesia, New York University School of Medicine and Postgraduate Medical School, New York, N.Y.; Visiting Physician in Charge of Anesthesia, Bellevue Hospital Center, and Attending and Director of Anesthesia, University Hospital, New York, N. Y.; Chief Consultant in Anesthesiology, Manhattan Veterans Administration Hospital, New York, N. Y., pp. 318, illustrated, published by The C. V. Mosby Company, St. Louis, Missouri, 1962.

This textbook of anesthesiology is said by the authors to be designed for medical students and general practitioners. It should be of value to medical students. With the current trend toward specialists in anesthesia, it is doubtful that this book would be of value to these practitioners. The book has very few illustrations. There are brief chapters on anesthetic agents and adjuvant drugs. Techniques of administration are discussed adequately. There is a good chapter on the prevention of complications of general anesthesia. There is also an interesting chapter on monitoring of anesthesia using various instruments. Cardiac resuscitation is discussed but very briefly. Hypothermia and hypertension are covered very briefly. The book is recommended as a textbook of anesthesiology to medical students only.

PRIMER OF CLINICAL MEASUREMENT OF BLOOD PRESSURE by George E. Burch, M.D., Henderson Professor of Medicine, Tulane University School of Medicine, New Orleans, La.; Physician-in-Chief in Medicine, Tulane Unit of the Charity Hospital of New Orleans, La.; Consultant in Medicine and Cardiology, Veterans Administration Hospital, Touro Infirmary, Hotel Dieu Hospital, Mercy Hospital, and Ochsner Foundation Hospital, New Orleans, La. and Nicholas P. DePasquale, M.D., Instructor in Medicine, Tulane University School of Medicine, New Orleans, La.; Visiting Physician, Tulane Unit of the Charity Hospital, New Orleans, La., pp. 141, illustrated, published by The C. V. Mosby Company, St. Louis, Missouri, 1962.

This 141-page primer is written by an authority. It is an excellent brief text for medical students and nurses. It has a large number of references and a moderate number of charts and illustrations. It is heartily recommended.

AK

TEXTBOOK OF PATHOLOGY WITH CLINICAL APPLICATION, Second Edition, by Stanley L. Robbins, M.D., Professor of Pathology, Boston University School of Medicine; Associate Director of the Mallory Institute of Pathology, Boston, Massachusetts; Lecturer, Harvard Medical School and Tufts University School of Medicine, illustrated, pp. 1190, published by W. B. Saunders Company, Philadelphia & London, 1962.

This standard textbook of pathology is encyclopedic and complete. It is well written and it is organized along conventional lines. It has a moderate number of illustrations. The reviewer would prefer even more illustrations than are included. Some occasional references to electron microscopy are present. It might be wise to have included more. This book is heartily recommended to all medical students and practitioners.

AK

FUNDAMENTAL SKILLS IN SURGERY, by Thomas F. Nealon, Jr., M.D., Associate Professor of Surgery, Jefferson Medical College, illustrated, pp. 289, published by W. B. Saunders Company, Philadelphia and London, 1962.

This short textbook is an excellent primer of surgery and should be of real value to the junior and senior medical students and to the young house officers. It is an accumulation of basic information concerning surgery. It includes such often forgotten things as the names and shapes of the various instruments. There is a chapter on operative conduct. There is some discussion of anesthesia. Burns are discussed in one chapter. There is a discussion of different parts of the body, region by region. This book should be of real value to the embryo surgeon. It is heartily recommended.

* * * *

CONTRIBUTORS TO THE AMERICAN MEDICAL EDUCATION FOUNDATION

during the

Month of March 1962

Bowie-Miller County Woman's Auxiliary.....	\$ 17.50
Dr. Wm. K. Bell, Jonesboro.....	5.00
Mrs. C. Clark, Fayetteville.....	10.00
John Calhoun, Texarkana.....	5.00
Craighead-Poinsett Woman's Auxiliary.....	5.00
Clark County Medical Auxiliary.....	85.00
Craighead-Poinsett Woman's Auxiliary.....	5.00
Mrs. C. D. Dodson, Fayetteville.....	10.00
Dr. Kenneth R. Duzan, El Dorado.....	20.00
Mrs. C. Gray, Fayetteville.....	5.00
Dr. Edwin F. Gray, Little Rock.....	100.00

FEATURES

Kenneth L. Haley, Texarkana.....	5.00	Sebastian County Medical Auxiliary.....	50.00
Miss Patsy Hall, Fayetteville.....	20.00	Dr. William Stanton, Fort Smith.....	5.00
Independence Co. Medical Auxiliary.....	2.50	Dr. William Shields, Texarkana.....	5.00
Ouachita County Medical Auxiliary.....	10.00	Mrs. J. A. Upchurch, Fayetteville.....	5.00
Dr. David Russell, Jasper.....	5.00		
Ahda Smith, Fayetteville.....	5.00	TOTAL.....	\$380.00

TUBERCULOSIS



ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

INFECTIOUS PNEUMONIA, A CONTINUING PROBLEM IN DIAGNOSIS AND MANAGEMENT

Pneumonia may be caused by a variety of organisms, but the usual pathogens are bacteria or viruses. Clues to diagnosis may be found in the clinical, X-ray, or laboratory findings.

Infectious pneumonia may be caused by a variety of specific organisms, more frequently bacteria or viruses than rickettsiae or fungi. Primary infectious pneumonia applies to pneumonia that occurs as the initial illness; secondary infectious pneumonia applies to pneumonia that complicates a preceding disease process, the pathogen usually being bacterial.

Pneumococcus, still the most common cause of bacterial pneumonia, usually is responsible for a lobar-type reaction.

Staphylococcal pneumonia is usually lobular. The rise in the incidence of staphylococcal pneumonia in recent years may be due in part to staphylococcal superinfection in patients hospitalized for other illnesses.

Haemophilus influenzae, although capable of producing primary pneumonia, more often is a secondary invader. The reaction to Klebsiella (Friedlander's bacillus) pneumoniae, an infrequent cause of pneumonia, is typically lobar. Tuberculosis also is to be suspected in pneumonia involving the upper lobes of the lung.

GEORGE W. MORROW, JR., M.D.; ARTHUR M. OLSEN, M.D.; WILLIAM J. MARTIN, M.D.; *Proceedings of the Staff Meetings of the Mayo Clinic*, March 14, 1962.

Proved viral pneumonia has been due mostly to the adenoviruses or to influenza viruses, types A and B. This may reflect the relative ease with which diagnosis of infections due to viruses of these groups can be established by serologic methods. Since only a minority of viral infections are currently recognized by this method, the diagnosis of primary infectious pneumonia still depends upon the commonly used clinical and laboratory aids.

The recognized screening technique for all cases of pneumonia is the culture of sputum and blood specimens prior to antibiotic therapy. A bacterial diagnosis can usually be established in 24 to 48 hours. The fluorescent antibody technique appears promising for the early diagnosis of viral infections.

Roentgenographic findings are necessary to confirm the diagnosis of pneumonia and may shed light on the type of pneumonia. A diagnosis of bacterial pneumonia is usually justified when the roentgenogram reveals cavitation within an area of pulmonic infiltration or when broncho-pleural fistula or pneumatocele formation is present. Where there is a lag in roentgenographic change compared with pulmonary findings together with a bilateral lobular type of pneumonic involvement, viral pneumonia is suspected.

Clinically, bacterial pneumonia classically starts with a productive cough. In viral pneumonia, cough is generally absent initially or is dry and irritating, the main complaints being



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SEARLE

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headache, myalgia, malaise, and fever. In bacterial disease, the pulse rate is rapid and correlates with the level of fever; in viral disease it tends to be slower than expected. In bacterial disease the response is usually favorable and prompt recovery is expected if a positive sputum culture is obtained and an appropriate antibiotic is administered. Since no agents of proved viricidal activity are commercially available at present, patients with viral pneumonia usually have a sustained fever for five to seven days.

In viral pneumonia the leukocyte count is usually normal; in bacterial pneumonia it is usually increased. The sedimentation rate of erythrocytes is elevated in both bacterial and viral pneumonia, with the more significant increase in viral disease.

Sputum culture usually gives positive results in bacterial pneumonia and negative results in viral, but results may be positive in the latter because of bacterial contaminants from the nasopharynx and therefore may be misleading.

TREATING THE PNEUMONIAS

In the management of the pneumonias, there is no substitute for clinical acumen combined with a thorough knowledge of antimicrobial agents and their potential application.

In pneumococcal infections, penicillin remains the agent of choice. In patients allergic to this agent, erythromycin base may be used.

In patients believed to have staphylococcal infection, dimethoxyphenyl penicillin sodium (Staphcillin), vancomycin, kanamycin, chloramphenicol, and novobiocin can be employed in that order of choice. As soon as results of cultures and *in vitro* susceptibility tests are available, the appropriate antibiotic should be substituted.

Since penicillin and dimethoxyphenyl penicillin sodium are cross allergenic, the latter cannot be used in patients with an untoward reaction to penicillin.

In infections due to *Haemophilus influenzae*, *Klebsiella pneumoniae*, *Pasteurella tularensis*, and *Brucella*, combined tetracycline-streptomycin therapy is effective. Tetracycline is used in

rickettsial infections. Chloramphenicol should be avoided as much as possible because of its potential hematotoxicity.

For tuberculous pneumonia the combination of streptomycin and isoniazid is first choice, with para-aminosalicylic acid as a substitute for either.

The majority of primary pneumonias do not respond to antibiotic therapy, suggesting a viral causation. In patients not critically ill, one should therefore await reports on microbiologic studies before considering antimicrobial therapy. Fulminating staphylococcal pneumonia may be indistinguishable from severe viral pneumonia in the first 48 hours. Patients believed to have this type of pneumonia should be treated empirically with an antimicrobial to which staphylococci are known to be sensitive.

Because secondary staphylococcal invasion appears prone to occur in patients receiving the tetracycline or allied agents, which suppress the gram-negative elements of the normal body flora, tetracycline drugs should not be used unless other drugs are known to be less effective. In viral pneumonia, treatment at home should be considered since hospitalization may provide contact with virulent bacteria and the possibility of superinfection.

As for supportive therapy, oxygen therapy is specific for dyspnea and sometimes a tank resuscitator may provide life-saving support.

PROGNOSIS

Pneumococcal pneumonia still causes significant mortality. Staphylococcal pneumonia was the leading cause of death in many areas during the recent outbreak of Asian influenza.

Viral pneumonia is a self-limiting disease in most patients, with complete recovery. However, it may be the sole mechanism leading to severe hypoxia and death.

If the clinical course is unusually prolonged in pneumonia, or if the pulmonary infiltrate has not completely resolved by the fourth week, the possibility of a tuberculous basis, an associated systemic disease, or an underlying malignant process should be suspected.

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NATIONALIZED MEDICINE IN BRITAIN— THE WINDS OF CHANGE

An Address by

John R. Seale, M.D., M.R.C.P.

Richmond, Surrey, England

THE CURRENT PROPOSAL TO FINANCE medical care for the elderly in the United States by use of the social security tax raises the question of the proper relationship between government and medicine in a democratic society. There is no place for an Englishment to tell American citizens what they should or should not do, but it may interest them to know of recent developments in the nationalized health service in Britain. It is always possible that nations may learn from the successes and mistakes of others.

The State Health Service

Medical care of all forms is provided in Britain through a state operated health service which was created in 1948 by the Labour government in power at the time. The State provides medical care free of direct charge to the entire population irrespective of income, thus relieving the individual of much of the financial hardship associated with illness. All hospital and specialist care are free, all the services of general practitioners are free, and there are only nominal charges of 30 cents for prescribed drugs, and small charges for dental treatment. The Act of Parliament laid upon the central government the responsibility for providing these services itself, and to enable it to do so the private and city hospitals were nationalized, the State pays specialists a salary, and it pays general medical practitioners a modified form of salary. Although the state health service is partly financed by compulsory insurance payments, nearly 80% of the cost has been covered by general taxation.

The Post-War Climate

To make available to everybody all the medical care they require, free of charge, is a very attractive proposition to the people, although a rather Utopian intention. Certainly there was immense support from the general public and from the national press for a health service of this type at the time, and in many ways it has remained popular over the years. The climate of the times in Great Britain in 1946 when the N.H.S. Bill was passed by Parliament was favorable to extension of the activities of the state. Emerging from a World War which had lasted six years we had come to accept a degree of control of the individual by the State from which we have since moved away in almost all fields, except for health. In recent months, however, several of our economists have been questioning the basic arguments for nationalizing medicine, but even more important, signs of strain in the state service are now developing which suggest that it contains fundamental defects. There is a growing awareness that the wholesale nationalization of medical care fourteen years ago was a mistake and the damage done may take a long time to repair.

The Problem of Taxes

The provision of free medical care reduces the risk of financial ruin for the individual through illness. But a system which provides it brings new problems. Although the patient does not pay directly for medical care at the time he consumes it, nurses, doctors, dentists and other health

workers still have to receive an income in return for the services they provide. These incomes are no longer derived from the people as patients paying fees or voluntary insurance premiums—they come from the people as tax-payers. The problem of paying directly for medical care as a patient is merely shifted to the problem of paying taxes—and taxes are no more popular than direct payments for medical care.

Quality of Medical Care

Although the cost of the state service to the tax-payer has worried both the public and the government ever since it started, a new, more complex, and more important problem is developing—the quality of medical care available in the service. So much attention has been devoted to keeping down costs that the effects on quality have been inadequately perceived. But the quality of medical care received is of vital importance, for if it is not high the patient may lose his health, happiness and sometimes his life. If a child dies during an appendicectomy because the surgeon is inadequately trained, or the anaesthetist is inexperienced, or the intravenous pentothal is defective, the fact that the operation is performed free of charge is little consolation to the bereaved parents.

The Governmental Dilemma

Ever since the state service started successive governments have thus been faced with a dilemma. On the one hand the governments have attempted to provide medical care of the quality and quantity acceptable to the electorate, on the other hand they have tried to limit expenditure of tax funds as much as possible. Although the two objectives tend to be mutually exclusive, the issues are not of minor importance to the government. The whole nation is intensely interested in the level of taxation, and in the effectiveness of its state operated health service, the only channel through which it now obtains medical care—money and life interest us all a great deal. If the cost is too high or if the quality of medical care available is too low then a government could fall from power.

To Lower Costs

So far, as the most articulate public critics of nationalized medicine have levelled their attacks at high cost rather than low quality, the politicians and the health departments have naturally

done likewise. We must not forget that the government tends to do what the people want in a democracy, even though the wishes of the people may be harmful to themselves in the long run if their opinions have been based on inadequate information. To lower public expenditure the government can either increase the share of cost born by the patient and private insurance, or cut down expenditure on the service itself. It has been considered politically inexpedient so far to raise substantially the cost to the patient, and little serious thought had been given to encouraging the expansion of private health insurance. Great efforts however have been directed to curtail expenditure on the service itself.

Economy and Efficiency

How has cost been kept down over the last ten years or so? By efficiency in the use of material and human resources? Economy with efficiency have been the aims of the state authorities for ten years and in principle they are highly desirable objectives. However, economy in practice often means cheapness and this carried too far tends to impair efficiency.

Capital Expenditure

The easiest way to economize, the way used by a business as it goes bankrupt, is to cut capital expenditure. Capital expenditure was the first casualty in the economy campaign in the hospitals. One of the primary arguments in favour of nationalizing the hospitals in 1946 had been the view that capital expenditure on them under the old system before the war had been inadequate, and that after the damage and neglect of the war years only the State could afford the huge capital investment required to modernize them. Nevertheless, according to a report on the cost of the health service published in 1956 by a Government Committee, annual capital expenditure on the hospitals in the first six years after nationalization at constant prices was only one-third of that spent in the 1930's. The proportion of the total capital investment of the nation devoted to hospitals, already so low in 1949, has fallen substantially since then. It was not until 1962, fourteen years after the state monopoly was created, that detailed plans for a major rebuilding of the hospitals have been put forward. Forty-five per cent of the 4,000 British hospitals are already over 70 years old and 21% over 100 years

old. Because most of the capital which has been spent has gone towards patching and mending old buildings only one new hospital has been completed since the end of the war, although another 20 or so are under construction. To economize on capital in the hospitals, in which labor is the major item of cost, and in which much of the plant is already obsolete, is contrary to the most elementary principles of sound management. Much of the energies of doctors and nurses has, as a result, been wasted as they work in inefficient surroundings which have been perpetuated by an excessively narrow pursuit of economy.

Doctors in a Monopoly

A policy of stringency tends to lower the incomes of those who work in any organization dominated by this aim. For doctors in a nation where the state has a virtual monopoly in medical care, it becomes the only buyer of their services, because private practice is severely curtailed. Most people believe that governments spend the money raised by taxation very lavishly, but it must not be forgotten that the State can be mean as well as generous. The State has in fact used its immense power over doctors to obtain their services inexpensively.

General Practitioners' Pay

I shall not trouble you with the details of the prolonged struggles over earnings between the medical profession and the State, I shall only indicate the results. According to the economist, D. S. Lees, in his recent book, "Health through Choice," between 1950 and 1959 the real incomes of general medical practitioners fell by a fifth while those of the community in general went up by about as much. Even with the much publicized increase in doctors' pay in 1960 they are still no better off than they were ten years ago. This can be said of few other sections of the British working community and contrasts strongly with the trend of medical incomes in most other countries. Furthermore, the journal "The Economist" recently pointed out that the average real earnings of general practitioners last year was only 76% of what it had been in 1938, before the war.

Hospital Doctors

The fall in the earnings of doctors in hospitals has been more complex. All are paid salaries

and many grades of hospital doctors receive considerably lower real incomes today than they did 13 years ago. For instance, in 1948 a senior resident who received £1300 per year now receives £1800, but at constant 1948 prices his present day salary is 14% below what it was when the state took over the hospitals. Probably more important than the fall in real incomes of any particular grade, however, is the rapid expansion of medical appointments with low salaries compared with expansion of those with high salaries. Between 1953 and 1960 the number of senior, relatively well-paid specialists increased by 8% while the number of residents and interns increased by 21%. In the case of general surgery in the last nine years the number of senior specialists has actually been reduced. The result has been that surgeons have remained in junior posts (called registrars) on low pay for many years — indeed often till middle age. When the health service was set up it was indicated that the normal age for a surgeon to become a consultant, when he receives a reasonably high income, would be 32. In practice the usual age on becoming a consultant has been about 38, many specialists have continued as registrars into their 40's, and many others have only been able to obtain permanent employment by emigration. During the long years as a registrar the surgeons have often been undertaking, according to a recent government report, the same work as a consultant. But the salary of a registrar is only about half that of a consultant. Increasingly the demand for doctors in the nationalized hospitals has been for those who are willing to provide their services for low prices.

The Individual Case

The experience of one of my contemporaries is typical, and is illuminating. He completed his six years medical training at the age of 24, obtaining a First Class Honours Degree at the University of Cambridge. He subsequently worked at teaching hospitals in London for ten years and his rate of promotion in the hospital service was unusually rapid. Nevertheless, during the whole of this period, although he and his family always lived moderately, his family expenditure consistently exceeded income from full-time employment in the hospital service. Consequently, not only was he consuming capital throughout the first 24 years of his life, but he continued to

consume capital during the first ten years of employment. It is indeed ironic that a socialist health service has relied on young doctors working in it to have sufficient private capital to enable them to accept the low salaries offered.

Emigration

Is the 14 year policy of economy in doctors' earnings having any effect on the quality of medical care available in the nationalized hospitals? Many young doctors are showing themselves unwilling to accept the cut prices offered for their services by the State. Medicine may be a vocation but a vocation alone is inadequate to feed, clothe and house one's children. With the State virtually a monopoly employer of doctors they must either accept the terms offered by the State, or leave the country, or leave their profession. Large numbers have left the country. In the ten years of the 1930's, that is before nationalization, an annual average of 27 doctors with British degrees registered for practice in Australia. In the last five years the annual rate has been 225. The 1959 figure of 256 in the one year was almost equal to the total for the entire ten years of the 1930's. In the last eight years an average of over 200 British doctors emigrated to Canada each year. In the one year 1960 more doctors (162) trained in England and Ireland passed their State Boards examination in the United States of America than did in the whole ten years of the 1930's. In short, in the last ten years the number of British doctors going to Australia and North America has been well over five times the rate prevailing in the 1930's, and the total of 600 a year is equivalent to a third of the annual output of the British medical schools. The reasons for their departure is that in the countries of the New World the professional freedom of doctors is greater, the opportunity to practice medicine well is enhanced, and the financial rewards are more appropriate to the years of study, the long hours of work, and the heavy responsibility which doctors carry.

Falling Recruitment

To sustain the large loss of doctors by emigration there has not been a correspondingly high output from the British medical schools. The number of medical students in training has fallen continuously from 14,200 in 1950 to 12,300 in 1959. In spite of the steady fall in the early years

of the 1950's a government committee recommended a further 10% cut in the intake of students in 1957. As a result the number in training is now no greater than it was before World War II in spite of a rise in population and in spite of the increased complexity in medical practice which has characterized the last quarter of a century.

Rising Retirement

To aggravate the shortage of doctors in Britain due to high emigration and low recruitment, the rate of retirement of elderly doctors is now rising steeply. This reflects the uneven age distribution of British doctors—an unusually large number of men entered the medical profession after the end of the first World War in 1918 and these are now reaching retiring age. In the next five years nearly twice as many doctors will reach the age of 65 as did in the last five years.

Imports From Overseas

To cope with the failure in supply of doctors with British degrees the State hospitals are increasingly relying on doctors from overseas to take temporary posts. By 1960 41% of all junior hospital posts in England were filled by doctors trained outside the British Isles (nearly 4,000 doctors from overseas), and the proportion is rising rapidly. The total number is now equivalent to well over two years of output of our medical schools. In the region around Sheffield, an area in the north of England, 26 of the 74 hospitals have no doctors at all below the grade of consultant (that is under the age of about 40) who were trained in Britain. Increasingly the medical staff of State hospitals is a rapidly shifting labor force recruited from abroad, most of which does not intend to settle in Britain. These young doctors from overseas arrive with little experience, but once they have become competent, return to their own lands.

Falling Quality

The effect on the quality of medical care in hospitals was described by Lord Taylor, himself a doctor and previously a socialist member of Parliament, in the debate in the House of Lords on the shortage of doctors on November 29th last. Many hospitals are employing newly qualified doctors in responsible positions without adequate supervision. As Lord Taylor explained to the London Times, although "Many doctors from

overseas were inexperienced they could walk into our hospitals and begin practicing at once." There is no system whereby the State hospitals are made to keep within specified standards for the training of graduates from overseas. Large numbers of these, instead of receiving training and experience under supervision, which is what they would like, are being used as "pairs of hands" or, as one might say, inexpensive medical labor.

Language

Difficulty in language is one of the major problems because of the short time many remain in Britain. It is not unusual to find a doctor at a mental hospital who, being barely able to speak English, not only cannot communicate with his patients, but has great difficulty in talking to other doctors. In a study on Casualty Services, published by the Nuffield Trust, a large and busy casualty department is described in which the doctor in charge was "a graduate who spoke only a little English and required the nurses to act as interpreters." One of the officials in a regional hospital board recently said to the London Times "The greatest difficulty is that of communication. An Indian discussing clinical matters with a Greek, both of whom have only a limited knowledge of English, has difficulties enough but the problems become worse on the telephone when the general practitioner, perhaps in a northern dialect, tries to explain a patient's ailment to a Chinese."

Casualty Services

I have spoken a good deal about how the nationalization of medicine has affected the earnings and conditions of work of the doctors. But how has it affected the patient, without whom the doctor has no function? Let me again quote from Lord Taylor, one of the architects of our state health service, from his speech in the House of Lords. "It is in the hospitals outside the large teaching centers where the great bulk of the people are treated that the situation is critical. I cannot recommend your Lordships to go into such hospitals as a casualty, for there is in many cases no casualty officer. A house surgeon will have to leave the (operating) theatre when he can to treat you, and his experience will be far less than that of your own general practitioner. When he comes he will probably not be a British

graduate and he could well have difficulty in understanding what you say. This is at a time when speed and efficiency may be literally life saving."

Maternity Services

The maternity services are having similar problems. In Britain it has always been the practice for our midwives, who are highly skilled, to assist the doctor in maternity work. But the midwives, along with nurses and doctors, have had to contend with a powerful state eroding their incomes in the interest of economy. The supply of midwives has thus been failing, and although the annual number of births rose by 10% between 1951 and 1959, the number of practicing midwives fell by 13%. As a result of the shortage of midwives, combined with inadequate numbers of maternity beds, practices have developed in the maternity services in London which our medical journal, the Lancet, recently described as a national scandal. The pressure on the maternity services is such that it has become impossible for a mother to book a bed in a hospital if she applies after the third month of pregnancy. Many women who should be delivered in hospitals because of medical or social circumstances are thus unable to arrange for admission in advance. The mechanics of admission for these mothers is to wait till labor commences and then arrange for them to be admitted as an emergency if a vacant hospital bed can be found in the London area. Until 1956 this practice was unknown, but by 1960 3,600 women were admitted as emergencies in London in the one year alone. As a result, said a family doctor recently in the Lancet, "the baby is often born before the arrival of the ambulance, and the delivery is conducted without a midwife, or equipment, and usually without a doctor." On the very day I left England to visit your country, the national paper "The Sunday Times" carried a report on the crisis in the maternity services in London, in which it stated that on a single night in the preceding week, 11 women had had their babies at home under unsuitable circumstances because no vacant bed could be found.

Consuming Capital

I have concentrated on troubles in the supply of doctors because they are the most essential of the skilled personnel providing medical care. If the supply fails then there is real trouble ahead. However the effects of prolonged stringency are,

as I have indicated, also beginning to show in the nursing profession and in other health professions with unhappy consequences for the patients. I have stated on many occasions in my publications that the undoubted success of much of the state health service up till the present in providing medical care of high quality has been due to the abundant stock of human, moral and material capital which it inherited in 1948. British doctors, and particularly British nurses have for long had a world-wide reputation for excellence. Few will doubt that the material capital—that is the hospital buildings and equipment—has been allowed to run down. It is now becoming apparent that the human and moral capital of the health professions has also been consumed but only partially replenished. This is the problem which is now emerging in nationalized medicine which is as yet only imperfectly appreciated, but which will dominate the medical care field in Britain in the 1960's.

Quality—Not Cost

I think there are some lessons of general interest to be learned from these recent occurrences. It has been an error to assume that the major problem in medical care is cost. If the burden of payment is removed from the patient then all will be well was the oversimplified approach of the 1940's. This is just not true. Of greater importance is quality of medical care available. This is a complex concept, and somewhat intangible, just as the concepts of freedom and patriotism are, but their complexity and their intangibility makes them no less important.

Individual and the State

It would be absurd to suggest that cost is of no importance. But surely the objectives one wishes to attain in any form of health system is to ensure that there is available in a nation medical care of high quality, and to ensure that no individual shall be unable to obtain medical care for financial reasons, nor shall he be financially ruined because of medical expenses alone. These objectives can be achieved by a great variety of means, and it was certainly not necessary to nationalize all the medical facilities and personnel, and provide all medical services free, as happened in 1948. The State has an important part to play—in your country for instance the treatment of mental disease and of tuberculosis has for long

been a function of public authorities—but the individual also has a part to play. It is the preservation of a reasonable balance between the rights and duties of the State and of the individual which is the hallmark of a free but responsible society. In my country, this delicate balance has been disturbed in the field of health but we shall be making efforts to restore it. The realization that some change is needed is just beginning to dawn.

Medicine in Trouble

You may think from what I have said that medicine in Britain is in trouble. Indeed this was precisely what was said by the British Medical Journal in its leading article commenting on the debate in the House of Lords last November. But to assume that this is all there is to be said about the situation would be erroneous. The British may be slow to change their minds but once they realize that change is necessary they are well able to bring it about. Furthermore, it is when they realize that a situation is particularly disastrous that they are at their best.

Change and War

I can only remember dimly as a child the episode in 1938 now known as Munich. At that time the vast majority of my fellow countrymen was behind Mr. Chamberlain, the Prime Minister, in his policy of peace—at almost any price. Few British thought at the time, that there would be war, and none wanted it. But as events unfolded in the early months of 1939, as we perceived the abyss towards which we were heading then, a great change came over the people and we moved towards war in September as if we had always known that it was coming. It was, however, only after the shattering defeat of our armies in France in May, 1940 that we really showed our worth. All the rest of the world, all informed opinion in the United States, wrote us off as finished. The Germans even demobilized some of their fighting divisions. Yet in England we took it entirely for granted that we would continue to fight alone against Nazi Germany. This we did for a whole year until the United States came to our assistance and together we marched forward to find victory.

Change Again

So if you think that the British will never change their Nationalized Health Service because

they like the state to provide free medical care for all, and if you think that because medicine is in trouble we shall not remedy it, then I suggest that you think again. When my fellow-

countrymen come to realize from the course of events that change is needed, changes will be made, and if we are in real trouble then we will get out of it. After all—we have done so before.

ABSTRACTS

Renal Tubular Nuclear Inclusions of Lead Poisoning—

J. M. Angevine et al.

Arch Path—Vol. 73:486 (June) 1962

Studies of the cell nucleus with the electron microscope have been comparatively unrewarding because of the limited response of the nucleus to injury. Distinct nuclear changes in the renal tubule cells in experimental and chronic lead poisoning are described in this preliminary study. Further studies of the pathogenesis of this lesion may lead to an increased understanding of the nature of the nuclear response to toxic substances, and of whether this response is related to the functional changes in the kidney in this particular condition.

Uric Acid Metabolism in Proliferative Disease of the Marrow—E. C. Lynch

Arch Intern Med—Vol. 109:639 (June) 1962

The occurrence of hyperuricemia, uric acid nephropathy, and secondary gout in various proliferative disorders of the hematopoietic system is reviewed. In acute leukemia hyperuricemia is correlated with the degree of proliferation of abnormal leukocytes. Myeloid metaplasia is the hematopoietic disorder in which hyperuricemia and secondary gout are most frequently seen. The therapy of acute leukemia with 6-mercaptopurine is generally accompanied by a fall in the serum uric acid, probably due to marrow depression. Uric acid crystallization in the urinary tract during the therapy of leukemia may lead to severe renal insufficiency; preventive and therapeutic measures are outlined, based upon the probable pathogenesis of this syndrome. Gout may occur, secondary to myeloid metaplasia, polycythemia vera, and leukemia, particularly chronic myelocytic leukemia. Males are more frequently afflicted than females. Therapy of hematologic disorders may provoke gouty distress.

The Radiorenogram as a Measure of Renal Function—J. D. Boyd and H. R. Murdeck

Arch Intern Med—Vol. 109:654 (June) 1962

The radiohippuran renogram has become recognized as a valuable diagnostic agent in the detection of gross disturbance of function of one or of both kidneys. Less use has been made of the

procedure in the measurement of renal function. A procedure is described for the quantitative appraisal of the radiorenographic curve, using 3 different indices of the rate of radiohippuran clearance from the body. Through this procedure, the scope of usefulness of the radiorenogram is extended to embrace the screening of the patient for various degrees of renal dysfunction, either unilateral or bilateral. The test can be employed serially as well, to follow the course of renal function in renal or non-renal disease.

Effect of Splenic Irradiation upon Systemic Hematopoiesis—D. J. Hotchkiss, Jr., and M. H. Block

Arch Intern Med—Vol. 109:695 (June) 1962

The remission which followed splenic irradiation was studied in patients with chronic myelogenous leukemia. Of the 16 courses of therapy given to 11 patients, a clinical and hematologic remission occurred after 14 courses in 9 patients. In a remission the white cell count fell and the hemoglobin rose. Prior to treatment, sections of sternal bone marrow aspirations were solidly cellular; erythroblasts were decreased in number. With a remission, 10 of the 11 sections, which were obtained from 24 hours to 3 weeks following cessation of therapy, revealed a moderate increase in the number of erythroblasts in a still hypercellular marrow. By 1 to 3 months after therapy, 7 of the 8 sections obtained revealed a further increase in erythroblasts. In addition a marked decrease in the total cellularity of the marrow had occurred in 5 of these 7 sections. Cr⁵¹ red cell survival studies were also performed in 5 patients. An abnormally high rate of red cell destruction in 2 patients with marked splenomegaly decreased to normal during splenic irradiation. In 3 patients with minimal splenomegaly, the red cell survival was normal before and during therapy. The correction of the anemia, which occurred in these patients following splenic irradiation, was probably due to an increase in red cell production in the unirradiated marrow, and, in those patients with marked splenomegaly, to a decrease in red cell destruction. Changes observed in the unirradiated sternal bone marrow following irradiation localized to the spleen demonstrated morphologically an indirect effect of irradiation in man.

ROENTGENOLOGY OF NON-INFECTIOUS LESIONS IN THE RESPIRATORY TRACT IN INFANTS AND CHILDREN*

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THERE ARE MANY VERY IMPORTANT conditions which affect the respiratory tract in infants and children of which the practicing physician should be aware. There is no question that in the majority of cases the symptomology referable to the respiratory tract is usually due to infectious disease. However, one must be aware that there are many other conditions besides infections that the physician should be acquainted with. In general, these can be divided as follows: Congenital anomalies, respiratory distress in the newborn, neoplasms, foreign bodies and pulmonary manifestations of systemic disease.

It is important, before there is any discussion of lesions of the respiratory tract in infants and children, to emphasize that there are certain normal shadows and technical factors which may simulate disease, and therefore one must be made aware of these before trying to interpret roentgenograms.

Factors to consider in analysing a film is technical quality and the position of the child. It is quite easy today to obtain a proper film of the chest in a child as far as degree of blackness and whiteness or contrast is concerned. However, it is not as easy to obtain one of an infant or a young child in the proper phase of inspiration. If a roentgenogram is not taken in the proper phase of respiration, a certain aberration can occur which may simulate disease. For instance, the trachea in a child is a relatively pliable structure. If the film is taken in partial expiration, or is taken as the child closes his glottis, as some children will do in an attempt to obtain an X-ray, the trachea will seem to buckle to the right and simulate a mass on the left pushing the trachea to the right. (1) Phases of respiration will vary the width of the mediastinum. Films taken in partial expiration show unusually wide medi-

astinal shadows, which should not be mistaken for mediastinal tumors. Analysis of the lung fields also cannot be made without the proper inspiration film. Roentgenograms in expiration show diffuse haziness throughout the lungs, and this can be easily mistaken for diffuse pulmonary disease where none actually exists. It is therefore extremely significant in infants and children that roentgenograms be taken in full inspiration and in the proper frontal projection so that one is not lead to believe there are disease processes in the mediastinum and lungs which do not exist. Fig. 1.

The problem of the thymus also should be mentioned before any further discussion as to organic lesions of the mediastinum or of the pulmonary tissues can be considered. The thymus is a structure which is found in the superior anterior mediastinum, usually directly behind the sternum and in front of the trachea, great vessels and pericardium. Its size varies tremendously and produces many varied shadows on the roentgenogram. It also varies with phase of respiration. Many times the thymus shadow will blend with the cardiac border and give a false impression that the heart is large. However, most of the time one may see a very small indentation in the right lower mediastinum or on the left which indicates that the shadow of the mediastinum is caused by the thymus. The lateral views will frequently be of value because it will show the shadow lying immediately below the sternum and an inferior border may many times be outlined. As far as we are concerned in this discussion, the thymus in itself never causes respiratory obstruction. If respiratory obstruction is present when a large thymic shadow is seen, it should not be considered as the cause, but only an incidental finding, and further investigation of the respiratory tract should be done.

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In the group of congenital anomalies and conditions as agenesis of the lung, cysts (solid or air filled) and sequestered segments of lung will cause respiratory difficulty in the child. Agenesis of the lung is usually manifested very early in life as these children do not have sufficient respiratory reserve to function normally with one lung. On the roentgenogram the heart and mediastinal structures are seen to lie almost entirely in one thoracic cavity. The right side is the most common. The heart and mediastinal structures are shifted markedly to the right. The cardiac shadow frequently cannot be made out because it is in the right thorax. The left lung is very well aerated with some herniation of the lung across the mediastinum to the right. A clue to the condition can be noted by the rib cage on the right side. These are usually more slender and slightly underdeveloped, suggesting that they have had no stimulation for growth and that an underlying aplastic lung is present. An esophogram will confirm the shift of the mediastinum. Exact diagnosis cannot be made without endoscopic procedure and visualization of the right lung by a bronchogram which will show an absence of the right lung. These children have considerable difficulty in early life. However, if they can adjust to their one lung, they will continue into adult life. Not infrequently there are other anomalies associated with pulmonary aplasia, such as hemivertebra and skeletal abnormalities.

Congenital cystic disease of the lung is a rather rare malformation. (2) However, it does occur with sufficient frequency so that one must be aware of the condition. It must be remembered that most cystic conditions of the lung are usually the result of an infection, and therefore acquired. Notoriously, cystic appearance of the lung occurs after *Staphylococcus* infection; and since we are not concerned with this type in this discussion, we will not elaborate on this disease. Congenital cystic disease of the lung may be filled with fluid and appear on the film as a dense structure, and by pressure on a bronchus will interfere with the ingress and egress of air and cause focal areas of emphysema and interference with the normal physiology of the lungs. This cyst may also be of the emphysematous variety, and local tensions will result with marked disturbance in the mediastinum and a marked disturbance as far as

respiration is concerned with subsequent severe distress. Many times these cysts must be removed as an emergency procedure.

Congenital pulmonary sequestrations are segments of lungs in which there is no connection with the bronchial tree, or there is an abnormal connection with the bronchial tree. However, one finding that is extremely important is that the arterial supply to this sequestered lung arises from the aorta below the diaphragm. These segments do not contain air and appear as solid shadows on the roentgenogram, and their differentiation from congenital bronchogenic cyst is difficult. An aortogram is necessary to delineate the abnormal arterial supply to the sequestered lung. Surgical excision is the treatment of choice.

In the immediate newborn period rapid or difficult respiration with distress to the infant has been called the respiratory distress syndrome. This is more or less a generalized term which describes the condition of the newborn. There are a number of diseases which will produce this. Some of these are hyaline membrane disease, congenital heart disease, obstructive emphysema, tension pneumothorax, diaphragmatic hernia and neonatal atelectasis. Differentiation can to a large extent be made by chest roentgenograms. Hyaline membrane disease is found more commonly in premature infants and those delivered by Cesarean Section, and the distress is present shortly after birth. The classical appearance on the roentgenogram is a diffuse, somewhat ground-glass appearance of the lungs with rather prominent air-filled bronchi about the non-aerated portions of the lungs. If the infant survives during the first four or five days of life, recovery is usually complete. Differentiation from aspiration and neonatal atelectasis is at times quite difficult.

Severe malformation of the heart will not infrequently manifest itself in the first week of life. Usually there will be associated cyanosis to alert the clinicians that a congenital malformation is present. The roentgenogram will be of some importance; however, the physical examination of the chest will also aid in the detection of the congenital malformation. Diagnosis of the exact anatomical malformation in the newborn is difficult. However, a child in severe respiratory distress and with a roentgenogram showing a very large heart and increased vascularity and who is cyanotic, certainly has severe congenital heart

disease. One of the most common in the newborn with cyanosis is transposition of the great vessels complex. These hearts are very large and the vascularity is increased. Many times further investigations would have to be made, such as angiocardiology to obtain the exact diagnosis. The roentgenograms however, are significant in being able to determine the size of the heart.

Congenital emphysema is a localized, tremendous collection of air that is trapped in a lobe, cannot be expelled by the lungs, and severe respiratory difficulty ensues. This occurs when there is a congenital abnormal weakness of a bronchial wall, or there is an abnormal mucosal fold which allows air to enter the lungs, but does not allow air to come out. In other words, air is trapped distal to the lesion or a check valve mechanism. In inspiration the bronchus or flap opens up so that air can readily enter the lung, while in expiration, as the intrathoracic pressure is increased, the bronchus becomes small or the flap closes so that the amount of air that is expelled during normal respiration is decreased, and there is retention of a small amount of air. As the child breathes, this gradually increases. The thorax on the side of the lesion becomes fixed because of the tremendous amount of tension. The heart and mediastinal structures are pushed to the opposite side, disturbing the circulation to the heart and interfering with the return flow to the lungs. Severe respiratory distress occurs and a surgical emergency may result. Removal of the emphysematous lobe results in complete recovery. This obstructive emphysema may occur in the immediate newborn period or may be delayed until later infancy, if it is not too severe. However, usually surgical intervention is necessary.

Small areas of atelectasis in the newborn are not uncommon and may be considered physiologic. It is known that at birth initial expansion of the lung is a gradual process and varies during the first four days of life in freely breathing infants. However, in prematures four to six weeks may elapse before the lungs are fully expanded. Usually these areas of atelectasis disappear and no therapy is necessary. However, there are conditions in which there is primary failure of expansion which may be regional or disseminated, and is primarily due to obstruction by residuals of amniotic fluid which normally cir-

culates in the bronchial channels during the latter part of life. Other than this primary failure of expansion of the lungs, atelectasis in the newborn period may occur following feeding or in the presence of tracheal esophageal fistula. The children who have had CNS damage at birth feed poorly and tend to aspirate leading to atelectasis. Respiratory distress is common. The roentgenographic findings will again show diffuse patchy areas of increased density throughout the lung fields.

In the newborn period spontaneous pneumothorax may occur for several reasons. There may be laceration of the pleura as a result of forceful therapeutic insufflation of the lungs or from emphysema caused by bronchial occlusion. Congenital abnormalities of the pleura may also be present. In any case, if the amount of air entering the pleural cavity increases to a sufficient degree to cause significant compression of the lung and shift of the mediastinum, tension pneumothorax occurs and respiratory distress rapidly ensues. Small amounts of pneumothorax rarely cause trouble and will be absorbed spontaneously. However, in a severe tension pneumothorax a needle must be inserted to relieve the pressure, and this usually is life saving. The point of rupture usually seals and there is complete recovery.

Another cause of respiratory distress which can be diagnosed by X-ray quite easily is that of diaphragmatic hernia in the newborn. (4) It is extremely important to establish this diagnosis as early therapy is vital. The hernia is due to persistence of one of the embryonic pleural peritoneal canals, which give rise to defects in the posterior lateral segments of the diaphragm. These defects occur through the foramina of Bochdalek, which are posterior. Defects in the anterior segments are through the foramen of Morgagni. The hernia may be either on the right or on the left, and is much more common on the left. When herniation occurs, there is frequently stomach, small bowel and colon in the left chest, and there is always a shift of the heart and mediastinal structures to the opposite side because of the space occupied by the hernia. The roentgen films of the chest are usually sufficient to make a diagnosis as they will show multiloculated areas in the chest, not infrequently with fluid levels and absence of a stomach shadow in the abdomen. If one is not certain as to the exact

diagnosis, the abdominal roentgenograms will show absence of stomach and intestinal gas. If there is still a question, a small amount of contrast material will readily establish the diagnosis. Once the diagnosis is established in a child with respiratory distress, surgery is indicated without delay.

One does not usually think of neoplasms in children, however tumors both benign or malignant are seen not infrequently. Of the benign tumors, the most common is the dermoid, which is found in the anterior mediastinum and in the midline. These may be completely asymptomatic and found on a routine roentgenogram, or because of their size and their position in the anterior of the mediastinum, press on the trachea and cause severe respiratory distress. The diagnosis cannot be made for certain on films, but any smooth midline anterior mass should be considered as a dermoid. Congenital cysts, fluid filled or air filled, can be seen in other portions of the lungs. Again the exact diagnosis cannot be made roentgenographically. However, their smooth outline usually indicates their benignity.

As far as malignant tumors of the chest are concerned, the neuroblastoma and the lymphoma group are by far the most common; however malignant teratomas, thymomas and, of course, metastatic lesions should be considered. By far the most common malignant tumor in the chest in a child is the neuroblastoma, which usually arises from neurogenic rests or ganglion cells along the sympathetic chain. Fig. 2. They may be found any place in the posterior mediastinum. Commonly they are in the upper chest. An associated erosion of the ribs on the roentgenogram or a Horner's syndrome clinically helps establish the diagnosis. If they are very smooth and regular, the possibility of a ganglion neuroma, a rather benign condition, should be considered. However, one cannot be certain unless sections are made. These tumors are prone to calcifications, so that the presence of calcium in a posterior mediastinal mass almost always means a neuroblastoma. Treatment is by surgical removal followed by X-ray therapy and chemotherapy if indicated.

The lymphoma group, which includes leukemias, Hodgkins and lymphoblastomas are in the mid mediastinum with large hilar nodes. The diagnosis here is usually established by a

biopsy, bone marrow or peripheral smear. The thymoma is a rather rare condition, but does occur and can usually only be diagnosed by biopsy. Metastases may be solitary or multiple. If they are solitary, they may cause some difficulty in diagnosis. The most common cause of metastases is the Wilms' Tumor in children.

In any discussion of non-infectious lesions of the respiratory tract in children special emphasis should be made concerning foreign bodies. The reason for this is that so frequently a child's obscure symptoms are due to a foreign body which has gone unrecognized by the parents or by the physician. These may be either the opaque or the non-opaque type. Especially in children who cannot communicate with their parents and in the act of playing aspirate a foreign body. If the foreign body is opaque, it readily shows up on the chest roentgenogram. If it is non-opaque, it is not obvious on the routine chest film. Children under the age of six years who do not have their molars and do not properly chew their food are the ones most prone to aspirate non-opaque foreign bodies, such as peanuts, carrots and the like. Usually the history is non-contributory. The child enters with respiratory distress and on clinical examination a wheeze is heard on auscultation. In all such cases in which there is unilateral wheeze or there is a history of a coughing spell during the eating in a young child roentgenograms should be made in both inspiration and expiration. The reason for this is to delineate any areas of localized air trapping in the lungs. A non-opaque foreign body, such as a peanut or a carrot, either by swelling or by mechanical obstruction or both, will partially occlude a bronchus. As the child takes a deep breath, air will pass around the foreign body and fill the distal portion of the lungs. As the child then expires, the bronchus becomes smaller and closes the lumen about the foreign body, resulting in trapping of air distal to the foreign body. Fig. 3A and B. Therefore on the roentgenogram, inspiration films will show equal aeration in both lungs or only a very small difference in aeration. However, on the complete expiration film since the child cannot expire all of the air on the side of the foreign body, the air will be trapped and there will be marked difference in aeration on the two sides of the lungs. When this is manifest on the roentgeno-

gram, a positive diagnosis of obstructive emphysema to the lung can be made with the possibility of an aspirated foreign body. These children should be subjected to endoscopy for visual inspection of the trachea and bronchi.

It is not readily thought that foreign bodies in the esophagus can cause respiratory distress, but this is frequently the case. A child may swallow a coin, a toy, a pin, a safety pin or some other object that can lodge in the esophagus. Usually because it is so large, it cannot pass down the esophagus or if it has a sharp point, it will get caught in the fold of the esophagus. The history may be noncommittal. The child does not remember or no one is aware of the ingestion of the foreign body. Erosion of the mucous occurs with subsequent infection. A mediastinitis develops which affects the trachea, and the earliest symptom is respiratory distress, secondary to the infection caused by the foreign body in the esophagus. The roentgenograms will show the foreign body if it is opaque. However, if it is not opaque, it may be necessary to administer a small amount of contrast material to outline a non-opaque object.

Most of the lesions I have described previously have concerned lesions which are more or less confined to the lungs. However, there are a number of conditions which show pulmonary manifestations of systemic disease, and even the very first symptom of the disease may be respiratory. In this category we have the diseases of the reticuloendothelial system, fibrocystic disease, congenital heart disease and the generalized lymphoma group.

Disease of the reticuloendothelial system include Hans Christian Schillers, Letterer Siewe's and eosinophylic granuloma. In these conditions there is diffuse infiltrate in the lung fields which manifest themselves in the roentgenograms as a diffuse, somewhat granular appearance of the lungs and clinically by mild to severe respiratory distress. The granulation tissue either compresses the alveoli so that the air exchange cannot take place or actually occludes a bronchus so that atelectasis occurs. There are other generalized

manifestations of these diseases so that further investigation is necessary either by bone marrow or by biopsy to confirm the diagnosis.

In fibrocystic disease the pulmonary manifestations are very significant. (5) This is a defect of the exocrine glands. All of the exocrine glands including the mucous secreting glands of the bronchi are involved. Because the bronchial secretions are thick and tenacious, they are not easily removed. Bacteria is easily trapped. The bronchi are plugged with the resultant localized emphysema and atelectasis. The Staphylococcus organism is the most frequent offender and produces peribronchial inflammation which gradually narrow the bronchi. Subsequently there is a marked decrease in pulmonary reserve. The sequence of events is usually localized infection leading to atelectasis and bronchiectasis, severe emphysema, and finally cor pulmonale and death.

Congenital heart disease is a long and varied subject. The roentgenograms help to a certain degree in recognizing congenital heart disease. However, in this discussion it should be rather limited. Roentgenograms should be made on all of these children to give a base line for the heart to see if it is enlarged. Most significant is the vascular pattern. If the markings are increased, there is no question that a shunting lesion is present.

In conclusion it can be readily seen that there are many conditions of the respiratory tract of a non-infectious nature that cause significant clinical symptoms. The roentgenograms with clinical information can be extremely valuable for a proper diagnosis. With proper diagnosis, intelligent therapy can be planned.

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THE DIAGNOSIS AND TREATMENT OF STROKES FROM CAROTID OCCLUSIVE DISEASE

Thomas M. Fletcher, M.D.*

DURING THE PAST DECADE THERE has been a renewal of interest in the cerebrovascular stroke syndrome, a condition which kills almost 200,000 people yearly in this country and which cripples many times more. Much of this interest stems from the fact that, with the widespread use of angiography, a significant number of these "strokes" have been found to result from occlusive disease of the carotid arteries. These vessels are accessible and large enough to permit successful surgical treatment in selected cases.

The problem of cerebrovascular disease in general was a much neglected field for many years because it was believed that little or nothing could be done for patients with strokes. Now that we are presented with the promise of successful therapy in some forms of stroke, increased awareness and early diagnosis of the disease is warranted. Carotid occlusive disease has been estimated to occur in approximately one-third of the cases of cerebral arterial insufficiency and about 15 per cent of patients who present with an acute stroke syndrome will be found to have carotid occlusions. Now that we have a clearer picture of the natural history of the disease process, the indications for surgical treatment are more clearly defined and it may be estimated that only 5 to 10 per cent of those patients with cerebrovascular episodes from all causes will prove to be amenable to surgery.

Since 1950 it has become widely appreciated that atherosclerosis of the carotid arteries may produce or contribute to the stroke syndrome. Arteriosclerotic plaques occur more commonly at the carotid bifurcation than any other artery of the body except the abdominal aorta. The left side is more often involved than the right; and this may occur because the left carotid is in more direct communication with the aorta than the right carotid and thereby may be subject to greater stress from the flowing blood. The site usually involved is the internal carotid artery

near its origin from the common carotid artery. It is important to remember that other possible sites for the occlusion are the innominate, left common carotid, and left subclavian arteries near their origin from the aortic arch. The work of DeBakey and his associates has emphasized that occlusive disease of these mediastinal vessels may also have a place in the etiology of the stroke syndrome. These sites of occlusion in the chest are not demonstrated in the usual carotid arteriogram and require special techniques for their demonstration. Multiple lesions occur frequently, a situation which will limit the development of collateral circulation and spontaneous recovery, and in some cases the multiplicity of lesions will make surgery unadvisable. In the early stages of the disease these occlusions are well localized and can easily be removed by endarterectomy.

Males are more frequently affected than females in a ratio of 2 to 1. Carotid artery disease often occurs in persons from 50 to 70 years of age but it may occasionally be found in young adults. In those patients under 40 the underlying mechanism accompanying the occlusion often differs from that in older patients in whom the usual cause is atherosclerosis. Hypertension, diabetes, and atherosclerotic involvement of other major vessels are present in many older patients, whereas in the younger ones, trauma, aneurysm, tumor, pregnancy, and generalized systemic illness are more commonly seen.

In over one-half of strokes due to carotid artery disease there is a history of intermittent attacks of neurologic dysfunction from a few days to years before the diagnosis of occlusion is made. In the remainder the course is progressive or there is sudden onset without warning. It is obvious that treatment must be instituted during the warning phase if it is to be maximally effective. Our goal must be to maintain a high degree of awareness for these early symptoms of cerebrovascular insufficiency to ascertain those patients who can be benefited by treatment. Operable carotid lesions are often not apparent on clinical grounds and it becomes necessary to perform

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angiography more frequently than we have done in the past.

The cerebrovascular stroke as a clinical phenomenon may present with remarkably wide variations in its pattern and severity. The term "stroke" simply refers to a focal neurologic disorder of abrupt development due to a pathologic process in blood vessels within or to the brain. It is the common denominator of all forms of vascular disease of the brain, and without the identifying characteristics of the stroke, the clinical diagnosis of cerebrovascular disease is always uncertain. For that reason the pattern and course in time is of great importance in its diagnosis which must be based on the entire constellation of clinical features rather than on specific signs alone.

The diagnosis of strokes due to carotid artery occlusion may be quite difficult to make on clinical grounds alone because the usual signs and symptoms of carotid occlusion are indistinguishable from those observed with other varieties of cerebrovascular disease as well as some other cere-

bral lesions. The clinical picture of an acute carotid occlusion is often the same as may be seen in middle cerebral artery thrombosis because the middle cerebral territory is primarily involved in both. If the circle of Willis is inadequate, the anterior cerebral territory on one or both sides and even the posterior cerebral area may be involved in an instance of carotid occlusion. Circulatory insufficiency in the territory of each of the major cerebral arteries will result in certain characteristic manifestations as given in Table I. The great variability of the clinical picture of carotid occlusion may be further illustrated by the many reports of completely asymptomatic occlusions occurring both spontaneously and with surgery.

Other than the specific pathologic process, an important factor in the course of these patients regards the nature and development of collateral circulation. There are several possible sources of collateral circulation when occlusion of an internal carotid artery occurs. Table II summarizes the most important of these. They exist within

SUMMARY OF MOST COMMON FINDINGS IN OCCLUSIONS OF CEREBRAL VESSELS

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Artery	Motor Signs	Sensory Signs	Aphasia	Visual Defects	Other
Internal carotid	Contralateral hemiplegia	Contralateral hemianesthesia	Complete	Hemianopsia **	
Anterior cerebral	Contralateral hemiplegia; most severe in proximal arm & distal leg; leg most affected	Contralateral hypesthesia of leg	Mild, transient		Intellectual loss; emotional instability
Middle cerebral	Contralateral hemiplegia; arm most severe; Dysarthria	Contralateral hemianesthesia	Global	Hemianopsia; If partial, of a lower quadrant	
Posterior cerebral	Contralateral hemiparesis	Contralateral hemianesthesia; Thalamic pain	Alexia	Hemianopsia; If partial, of an upper quadrant; If bilat. or sudden, temp. blindness	Scintillating scotomata
Vertebral-basilar	Mono, hemi, or quadri-paresis	Anesthesia		Blurred or dark vision or blindness	Ataxia Diplopia Dysphagia Dysarthria Deafness Coma

POSSIBLE SOURCES OF COLLATERALS IN CAROTID OCCLUSIVE DISEASE

I. Circle of Willis

- a. Anterior communicating
- b. Posterior communicating

II. Superficial cerebral

- a. Anterior-middle-posterior cerebral on surface of brain
- b. Basilar-posterior cerebral

III. External-Internal Carotid anastomosis

- a. Middle-anterior meningeal
- b. Facial group
- c. Anterior choroidal-posterior cerebral

three main areas: 1. within the circle of Willis; 2. between distal branches of cerebral vessels on the surface of the brain and 3. extracranial branches between branches of the external carotid and branches of cerebral vessels.

It is frequently postulated that the intermittent symptoms so frequently seen with carotid occlusion may represent transitory failure of these collateral channels. Significant collateral circulation has been reported to occur from within ten hours to six weeks after the probable onset of occlusion.

There are certain symptoms, signs, and simple procedures which may prove useful in the early recognition of occlusion of the internal carotid artery. These include the following:

1. Palpation of the carotid pulsations in the neck
2. Auscultation for carotid or intracranial bruit
3. Contralateral carotid compression
4. Ocular manifestations, including ophthalmodynamometry

I would like to briefly consider each of these.

The value of diminished carotid pulsations in the neck as a diagnostic sign of carotid occlusion has been debated by several observers familiar with the problem. One may say with a fair degree of certainty that absence of the carotid pulsation in the neck together with loss of the superficial temporal pulses is diagnostic for the infrequent common carotid occlusions. On the other hand unequal carotid pulsations can occur in several other conditions unrelated to carotid oc-

clusive disease, such as cervical rib syndromes, aortic arch or innominate aneurysms and anomalies. Palpation of the internal carotid at the bifurcation or in the tonsillar fossa is usually unreliable because it is difficult to separate the pulses of the internal and external carotids. The major pulse felt in the pharynx is that of the external carotid. Despite the fact that almost 30 per cent of cases will show diminished pulsations on the side of occlusion, most writers state that palpation of the neck and pharyngeal pulses is not particularly helpful in establishing a diagnosis.

Carotid or intracranial bruits may be found in 10 to 15 per cent of patients with carotid occlusion, but audible murmurs in these locations may also be found in many other disease states. A murmur heard over the carotid artery may mean a partial occlusion at that site, but it is important to note that the murmur can also occur on the side opposite a completely occluded carotid. This is probably due to collateral blood flow through the anterior communicating artery.

Compression of the common carotid artery opposite to the side of suspected occlusion is a maneuver of considerable diagnostic importance. A majority of the patients with partial or complete occlusions will demonstrate syncope after 15 or 20 seconds of manual compression of the normal carotid. Care should be taken to compress below the carotid sinus which could confuse the findings. Other findings which might occur with compression include seizures, contralateral paresthesia or hemiparesis, EEG abnormalities,

retinal arterial narrowing and changes in the retinal artery pressures. Complications have been reported following this maneuver but they are rare and most clinicians feel that the amount of information to be gained far exceeds the possible risk.

There are certain ocular manifestations which may occur in these patients with carotid occlusive disease with an estimated incidence of 10 per cent or less in several large series. The most common symptom reported has been amaurosis fugax, the term applied to transient losses of vision which occur in one eye only. This state may be partial or complete and it usually occurs without warning, reaching its maximum in a few seconds and is followed in the next 5 minutes or so by a return to normal. When it occurs on the opposite side of a hemiplegia, it is good evidence that an internal carotid occlusion has occurred. Other ocular manifestations include retinopathy on the affected side, asymmetric hypertensive retinal vascular changes, ipsilateral optic atrophy, and occlusions of the retinal artery or branch artery.

Ophthalmodynamometry has been proven a valuable diagnostic aid in this condition. Its rationale is based upon the observation that occlusions or insufficiencies of the carotid artery will usually cause lowering of the blood pressure in its first branch, the ophthalmic artery, and in the central retinal artery. The procedure is a simple diagnostic test which should be done in the clinical evaluation of cerebrovascular accidents as well as to evaluate anti-coagulant or surgical therapy such as carotid ligations, endarterectomies, and by-passing procedures.

With or without all of the other findings and procedures the definitive diagnosis of carotid occlusion depends upon an adequate angiographic study; not only to confirm the diagnosis but also to determine the extent of occlusion and to evaluate collateral circulation. It should be performed bilaterally.

In any consideration of surgical therapy in these patients the knowledge that there is a segmental area of involvement is important for its success. The decision cannot be made without a complete angiographic study. If the lesion is well localized, it may be removed by endarterectomy. If it is more extensive or associated with

certain intramural changes, the lesion may be by-passed using a graft. Infrequently it may be possible to excise the diseased portion and perform an end-to-end anastomosis. As a general statement it may be said that with evidences of severe infarction, surgical treatment of a stenotic lesion of the carotid is of doubtful value. On the other hand episodic symptoms due to localized lesions will improve after surgery. Surgery which is performed after an acute stroke should be within 8-12 hours of onset of the attack, otherwise the results are likely to be poor.

A number of possible benefits may follow endarterectomy. In removing the atheroma, the likelihood of forward embolism is greatly decreased. By opening the stenotic channel an increase in blood flow should result. By removing the atheroma the possibility of an ischemic crisis in the presence of systemic lowering of the blood pressure is lessened. An endarterectomy may be of value in the production of collateral circulation even if it works for a short period only.

One question frequently arises in the management of a patient who has had a stroke. That is whether or not to start anticoagulation. In the past this has been too widely recommended in stroke problems. This mode of therapy probably should be restricted to the stroke-in-evolution and to the treatment of patients who have repeated transient ischemic attacks in an attempt to reduce the number of subsequent ischemic attacks. On the other hand it has little or no value in those patients with a completed infarction, that is, those without evidence of recurrent ischemic or advancing neurologic deficits. An obvious contraindication is the group of cerebrovascular accidents in which hemorrhage cannot be definitely excluded.

In regard to carotid occlusive disease specifically the results of anti coagulant therapy are discouraging and many instances are reported of complete occlusions occurring while patients were being treated adequately. In selected cases with transient sporadic attacks who do not meet surgical indications otherwise, anticoagulation may be recommended. When segmental occlusions are demonstrated in accessible areas, they should be removed surgically unless a severe infarction has already occurred.

TEACHING SEMINAR

Department of Medicine
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CHRONIC OBSTRUCTIVE PULMONARY DISEASE

C. Dowell Patterson, M.D.*

IN RECENT YEARS ADVANCES HAVE OCCURRED in the understanding of chronic obstructive pulmonary disease. Elaborate techniques have been developed for the study of pulmonary function. These have included the measurement of the various lung volumes, (1), of ventilation and perfusion, (2), and of the mechanics of breathing (3), (4). In addition the pathology of pulmonary emphysema (5), (6) and chronic bronchitis (7) have also been systematically investigated. The information gained by these studies has contributed greatly to the knowledge of these diseases. However, it seems unlikely that any of the physiological methods will replace the carefully performed history and physical examination.

It is the purpose of this paper to present and discuss two patients with chronic obstructive pulmonary disease. Although the physiological al-

terations were almost identical in the two patients, the anatomical disorders were markedly different. The discussion attempts to correlate symptoms and pathologic physiology along with a brief guide to diagnosis and therapy.

CASE No. 1: O. H., No. 13-96-23, was a 53 year old white man who was admitted to the hospital on April 1, 1959, because of severe dyspnea and cyanosis. The history was obtained from his wife. He had asthma during childhood but improved as he reached maturity. There were no further respiratory symptoms until twenty years before admission when he again experienced difficulty with episodes of wheezing and dyspnea. He had pneumonia three times. He received many different medications and obtained greatest relief from epinephrine and aminophylline. He had more difficulty during the night than during the day. Although his difficulty occurred throughout the year it seemed worse in the spring

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TABLE 1

†VITAL CAPACITY	*1 SEC. V. C.	**MMEF	***R.V./TLC	OXYGEN SATURATION	****pCO ²
CASE NO. 1: Patient was too ill to perform these studies				41.34%	117 mmHg
CASE NO. 2: 2.18 L	0.64 or 26%	0.33 L/Sec.	5.1/7.89 or 69%	84.72%	48 mmHg
NORMAL:	—	93% of Total	3.2 L/Sec.	—	92-96% 35-48

*1 second vital capacity.

**Maximum mid-expiratory flow rate

***R.V.=Residual Volume. TLC=Total Lung Capacity. This ratio increases with aging.

****Partial Pressure of Carbon Dioxide.

†Normal values may vary with size and age of patient.

and fall seasons. During the ten years prior to admission he noted progressively severe dyspnea on exertion and limited his physical activity. He had a chronic cough that was usually not productive although it was noted that he produced greenish sputum at the time of upper respiratory tract infections.

Ten days prior to admission he developed a sore throat with fever, chills, and generalized aching discomfort. This illness was interpreted as influenza. He began to produce yellow sputum three days before admission, and he became disoriented and confused the day of admission.

Physical examination revealed a cyanotic, delirious man obviously struggling for breath. The chest was hyperresonant. Musical rales were prominent over both upper lung fields while fine moist rales and rhonchi were heard over the lower lung fields. The heart was not enlarged although there was a grade II apical systolic murmur. His blood pressure was 120/80 mm. Hg., pulse was 120 beats per minute, respiration was 40 cycles per minute, and temperature was 100 degrees F. (rectal). The remainder of the physical examination was not significantly abnormal.

The urinalysis was slightly positive for sugar (1 plus) and for protein (2 plus). Hemoglobin was 12.8 gms. per 100 ml. and white blood cells were 8,300 per cu. mm. The differential count was normal. Blood urea nitrogen was 27 mgm per 100 ml., serum carbon dioxide combining power was 43 mEq/liter, and serum chlorides were 88.5 mEq/liter. Arterial blood gas analyses revealed marked hypoxemia and hypercapnia (see Table I). An electrocardiogram revealed right axis deviation and occasional ectopic ventricular contractions. A roentgenogram of the chest revealed a prominent pulmonary vasculature and a questionable area of infiltration superimposed on the cardiopericardial shadow. The venous pressure was 170 mm of saline and the arm to lung (ether) circulation time was seven seconds.

The patient received aqueous crystalline penicillin one million units intravenously initially and 600,000 u. intramuscularly every four hours thereafter. He also received intermittent oxygen by nasal catheter, aminophylline, digoxin and hydrocortisone. He coughed frequently and produced a tenacious purulent sputum. An emergency tracheostomy was performed on the third

hospital day. Large quantities of purulent sputum were removed by aspiration of the trachea. On the fourth hospital day his temperature rose to 102.2 degrees F. He expired later that day.

The final clinical diagnosis was bronchial asthma with severe pulmonary emphysema and pulmonary insufficiency.

At the time of post mortem examination both lungs were well distended with the chest open. Some small emphysematous bullae were noted at the apices. The right lung was dried in the inflated position to permit a thorough examination of the entire lung. It was surprising to find only minimal destructive pulmonary emphysema on sectioning this lung. Panlobular emphysema was present in a small portion of the lower lobe and centrilobular emphysema was evident along the posterior aspect of the lung. These changes were no more extensive than commonly encountered in people of similar age with no pulmonary symptoms. On examination of routine histologic sections of the lung there was noted minimal fibrosis of the bronchi. This patient is felt to represent chronic bronchitis complicating asthma.

CASE No. 2: L. A. F., No. 19-74-55. This 59 year old white male cotton grader was referred for evaluation and treatment of emphysema. He had symptoms of wheezing and shortness of breath beginning ten years prior to admission. These symptoms persisted and increased until at the time of admission the patient had two pillow orthopnea and marked swelling of his feet. He had had a productive cough for several years, usually producing thick, tenacious mucopurulent sputum. The patient was a heavy cigarette smoker for 37 years but stopped smoking approximately six years before admission. He had been treated with steroids, digitalis, and diuretics with only partial relief. The patient had been working until five months prior to admission. However, on admission he was barely able to walk across the room because of severe dyspnea.

On physical examination the blood pressure was 130/90 mm. Hg.; pulse was 100 per minute and respirations were 28 cycles per minute. The patient was cyanotic and in moderate respiratory distress. The chest was increased in the antero-posterior diameter. The diaphragms moved only slightly with respiration. The expiratory phase of respiration was prolonged and there were fine crackling rales over the right chest. The heart

sounds were distant. The second sound at the pulmonic area was greater than the second sound at the aortic area. The liver was palpable 4 cm below the right costal margin. There was 2 plus pitting pretibial edema. Clubbing of the fingers was not present. The remainder of the physical examination showed no significant abnormality.

Pulmonary function studies are shown in Table 1. There was a decrease in the vital capacity and a marked reduction in the rate of the expiratory air flow. The residual volume was increased and there was arterial oxygen unsaturation and a borderline elevation of the carbon dioxide partial pressure. The electrocardiogram showed right ventricular hypertrophy. The hemogram and urinalysis were essentially within normal limits. Large emphysematous bullae were present on the roentgenogram of the chest. These involved the right lower and middle lobes. There was atelectasis of some lung tissue medial to the large bullous lesions. Small bullae were present in the left lung.

Initially the patient was treated with digitalis, diuretics and aqueous crystalline penicillin 600,000 units intramuscularly every four hours. Only slight improvement was noted. Fourteen days after admission the patient had cardiac arrest. External cardiac massage was instituted within two minutes and an effective cardiac rhythm was restored. An emergency tracheostomy was performed and ventilation was maintained with automatically cycled positive pressure breathing.

With intensive nursing care and frequent aspiration of large quantities of purulent sputum from the trachea, the patient gradually improved. Within five weeks he was able to go to the bathroom alone. The partial pressure of carbon dioxide rose during this period to 65 mm of mercury. This indicated moderately severe pulmonary insufficiency due to alveolar hypoventilation.

A roentgenogram of the chest four years earlier had shown overexpansion of the lungs but did not show any bullous lesions. It was concluded that the development of the giant bullae had coincided with the increased disability of the patient. Excision of the bullae with re-expansion of the atelectatic lung therefore should have afforded a considerable improvement in lung function. As evidenced by the arterial blood gas analyses, the pulmonary insufficiency was mild at the time of his admission and more severe prior to operation. The relatively minor alteration in arterial blood

gases on admission was interpreted as evidence for the existence of some pulmonary reserve. This interpretation remains questionable. The patient was advised that excision of the bullous lesions offered a chance for symptomatic relief, but that it was a high risk procedure in his case. He requested the operation anyway.

At surgery the bullae were seen involving almost the entire lower lobe, the largest measured 15 cm in diameter. Other bullae of slightly smaller size occupied the apex of the right lung. The remainder of the lung was severely emphysematous. The two large bullae were excised and the chest closed with waterseal drainage in place.

Following surgery the patient became hypotensive. Initially the blood pressure was maintained with neosynephrine. This was later changed to angiotension amide. These were administered in intravenous infusions titrating the dose with the blood pressure response. Over the next 48 hours blood pressure stabilized and these medications were no longer necessary. During the entire post-operative period positive pressure respiratory assistance was required. The patient was unconscious much of the time, however, he did experience lucid intervals. Three days post-operatively, shortly after one of the lucid intervals, he suddenly expired. Permission for autopsy examination was not obtained.

Discussion

The first patient illustrates a characteristic history of chronic bronchitis. While the patient did have asthma as a child, the symptom free period during his most active years weighs against any permanent pulmonary damage. The subsequent onset of cough, sputum production and dyspnea are the cardinal manifestations of chronic bronchitis. In addition, the symptoms became worse with the occurrence of upper respiratory infection. These symptoms may occur in any patient who smokes and who occasionally has "chest colds." However, the persistence of symptoms takes this patient out of the realm of a benign innocuous recurrent illness and places him in the area of chronic bronchitis.

The usual clinical picture of chronic bronchitis may be divided into three phases as set forth by Stuart-Harris and Hanley in their excellent monograph (8). The first of these being the pre-dyspneic phase. This is characterized by cough and sputum production. The often yearly recurrence of symptoms in the chronic bronchitic serve

to differentiate from the patient with occasional acute bronchitis. Between attacks both are usually free of symptoms.

It is during this stage that bronchospasm tends to make its first appearance. This can lead to a distressing situation for the physician who first sees the patient in a dyspneic attack with severe wheezing. Is this, or is this not, allergic asthma? The best clue is that the onset of chronic bronchitis is usually late in life as opposed to childhood onset of asthma. The question is one, however, of long term management rather than immediate concern, for both bronchitic bronchospasm and asthma usually respond to administration of bronchodilators. The first patient illustrates the instance in which both diseases are present.

The pulmonary function studies performed during these stages of chronic bronchitis may be normal. The vital capacity is equal to the predicted value. The measurement of the expiratory flow-rate may be reduced. Measurement of the expiratory flow-rate before and after nebulization with a bronchodilator drug affords an index to the intensity of bronchospasm. The residual volume is usually normal and the arterial blood gas studies are normal. The patient with chronic bronchitis may ultimately develop continuous breathlessness.

It has been pointed out previously that pulmonary emphysema is an uncommon diagnosis in the British Isles. Chronic lung disease there is most often diagnosed as bronchitis. In the United States pulmonary emphysema has been considered the major disease and bronchitis has been considered an incidental occurrence. The present trend is to refer to the bronchitis-emphysema syndrome. The clinical picture and the physiologic abnormalities in emphysema and in chronic bronchitis are not sufficiently different to permit a clear distinction in all patients. In fact, most patients with advanced pulmonary emphysema have some degree of bronchitis and most patients with severe chronic bronchitis exhibit a degree of pulmonary emphysema.

Chronic bronchitis pathologically is an inflammation of the respiratory bronchioles and bronchi. Initially there is found an increase in number of the goblet cells present in the respiratory mucosa. With recurrent infection the mucosa is destroyed and replaced by fibrous tissue. Fibrotic changes may involve to some extent the adjacent

alveoli. There is also present hypertrophy of the bronchial glands. The increase in size of bronchial glands expressed as thickness of the gland has been shown by Reid (9) to be approximately four times the thickness of bronchial glands from normal individuals.

The total effect of these pathologic changes are increased bronchial secretions with decreased ability to clear secretions. This leads to increased susceptibility to infection and a cyclic train of events is established. Retention of secretions plus the actual fibrosis in and around the bronchioles causes the decrease in size of the lumen. As the disease progresses and infection becomes more severe, there may be dilatation and cyst formation in bronchiolar remnants and disruption of alveoli (7).

In contrast to chronic bronchitis, pulmonary emphysema is a disease of the lung parenchyma. Pathologically, emphysema is defined as a disruption of the alveolar walls leading to a coalescence of alveoli to form various sized air spaces. The pulmonary capillary bed is also disrupted. This is a destructive process and should be contrasted with the air trapping that occurs in the patient with asthma or the overexpansion occurring in the remaining lung in patients that have undergone pneumonectomy. This discussion is limited to the destructive type.

Emphysema has been divided into a variety of types based on the anatomical location of the emphysematous lesion. The secondary pulmonary lobule is taken as the anatomical unit. The secondary pulmonary lobule, hence forth called the lobule, is the smallest discrete unit of lung enclosed by fibrous septa. They are polygonal in shape and vary from one to two centimeters in each dimension (10). Two main types of involvement are described, centrilobular and panlobular. Panlobular is a diffuse involvement of the lobule while centrilobular is limited to the central portion of the lobule. Diffuse and localized are used to describe the extent to which the lung tissue is involved in the emphysematous process.

Physiology

It will be recalled from the normal physiology of respiration that inspiration is active and is accomplished by the contraction of the diaphragmatic and thoracic muscles. This movement produces negative intrapleural pressure which causes the lung to expand and air to enter the lung. The resistance to air flow in the bronchial tree is

somewhat less important during inspiration than expiration because the negative pressures cause dilation of the bronchi.

In contrast, expiration is passive and dependent upon the inherent elasticity of the lung (11). A second factor which influences expiration is the amount of resistance present in the bronchi and bronchioles. These two factors determine the expiratory flow rate. It has been shown that the expiratory flow characteristics of the lung vary with the degree of lung inflation. Further, below the mid-capacity level of inflation of the lung the flow rate is fairly constant and independent of increasing intrapleural pressures. Thus, below mid-capacity the flow rate can be increased only slightly by positive intrapleural pressure. If the pressure is increased to any great extent, there results a decrease in flow rate.

With this background, the defects in pulmonary emphysema are more easily understood. The disruption of the lung structure causes a loss of the elastic properties of the lung. This leads to several physiologic abnormalities. The expiratory flow rate is decreased both by a decrease in the lung elasticity and by an increased resistance in the airways. The patient attempts to compensate for the decrease in expiratory rate and volume by an increase in intrathoracic pressure which causes a collapse of the unsupported respiratory bronchioles. Thus, air is trapped in the lungs both by the loss of elasticity and the increased airway resistance. The retained air becomes part of the residual volume. Since the lungs can not increase appreciably in size the enlargement of the residual volume is at the expense of the vital capacity. In this manner the vital capacity is reduced.

Hypoxia and hypercapnia occur in emphysema as a result of alteration of the ventilation-perfusion ratios. The pulmonary capillary disruption causes a decrease in the surface of blood to be presented to the alveoli for gas exchange. With impaired gas exchange carbon dioxide tends to be retained both in the blood and in the air sacs. Hypoxia results from this same mechanism but usually does not occur to any significant degree until there is carbon dioxide retention.

As with chronic bronchitis, emphysema may run the gamut from the asymptomatic to the severely incapacitated patient. The latter type is illustrated by the second patient. The predom-

inate symptom here was the increasing breathlessness with only minimal cough and sputum production early in the disease. As the disease progressed the sputum production became more prominent.

Diagnosis

The diagnosis of the chronic bronchitis-emphysema syndrome is dependent upon the demonstration of cough, sputum production and breathlessness. The order in which these symptoms appear is of aid in distinguishing between the two major types of chronic obstructive pulmonary disease. Chronic bronchitis by its pathologic nature begins with cough and sputum, while in emphysema, sputum production is usually not prominent until later in the course of the disease.

In modern day society spitting is not considered socially acceptable, particularly in women and children. Therefore, a "no" answer to the question, "Do you cough up anything?" may not necessarily mean that there is no sputum production. It may even be necessary to have the patient produce sputum and place it in a bottle while the physician is present to prove that the cough is productive.

The physical examination of the chest, in contrast to the history is of less value in diagnosis of the chronic bronchitis-emphysema syndrome. The physical signs are subjective with the examiner and for this reason are not diagnostic. Fletcher (14) stated that the agreement of physical findings in the chest examination between eight competent examiners was not much better than the level of agreement which would occur with the tossing of a coin. Even such an obvious sign as barrel deformity of the chest can be present without significant obstructive pulmonary disease (13).

The roentgenogram of the chest is usually not helpful in establishing a diagnosis. Only if bullous lesions are seen is this procedure considered diagnostic. The vital capacity is easily the most useful diagnostic aid. The total vital capacity is with at least some estimation of timed vital capacity can be performed quite simply at the time of physical examination.

Treatment

Treatment of the bronchitis-emphysema syndrome is directed toward maintaining a clear bronchial tree. The avoidance of all irritants,

particularly cigarette smoke, is extremely important. Cessation of smoking may be the most difficult portion of the regimen to accomplish. In certain cases the use of bronchodilators is helpful.

The main stay of treatment, however, is aqueous crystalline penicillin given intramuscularly every four hours. This is the best method at present to eradicate the mixed floral infection usually present in chronic pulmonary disease. All infectious episodes should initially be treated with aqueous crystalline penicillin, later procain penicillin can be substituted (15). Long term prophylactic antibiotic therapy with oral medication has not been completely evaluated and the question of its usefulness is unanswered.

A word of warning should be added concerning the treatment of the chronic bronchitis-emphysema syndrome. It is usually attended in the more advanced disease by hypercapnia and hypoxia. When this occurs, the respiratory center, which usually drives respiration in response to an increase in carbon dioxide tension, becomes insensitive to carbon dioxide. This shifts the burden of respiratory control to carotid and aortic centers which are moderated by hypoxia. Therefore, if the hemoglobin oxygen saturation level is raised by the administration of oxygen, there is no drive to respiration and the patient may stop breathing. A similar chain of events occurs if any type of sedation, either narcotic or hypnotic, is given.

If oxygen is given it should be supplied intermittently and at low flow rates. A satisfactory method of administration involves breathing oxygen for five minutes and room air for five minutes. There are now available several different types of positive pressure breathing apparatuses. In the unconscious patient with acute respiratory insufficiency, these machines are indispensable in supporting respiration. In the routine long term care of patients with chronic

obstructive disease they are of some use as nebulizers, but should be discouraged if possible as the patient may become extremely dependent upon them.

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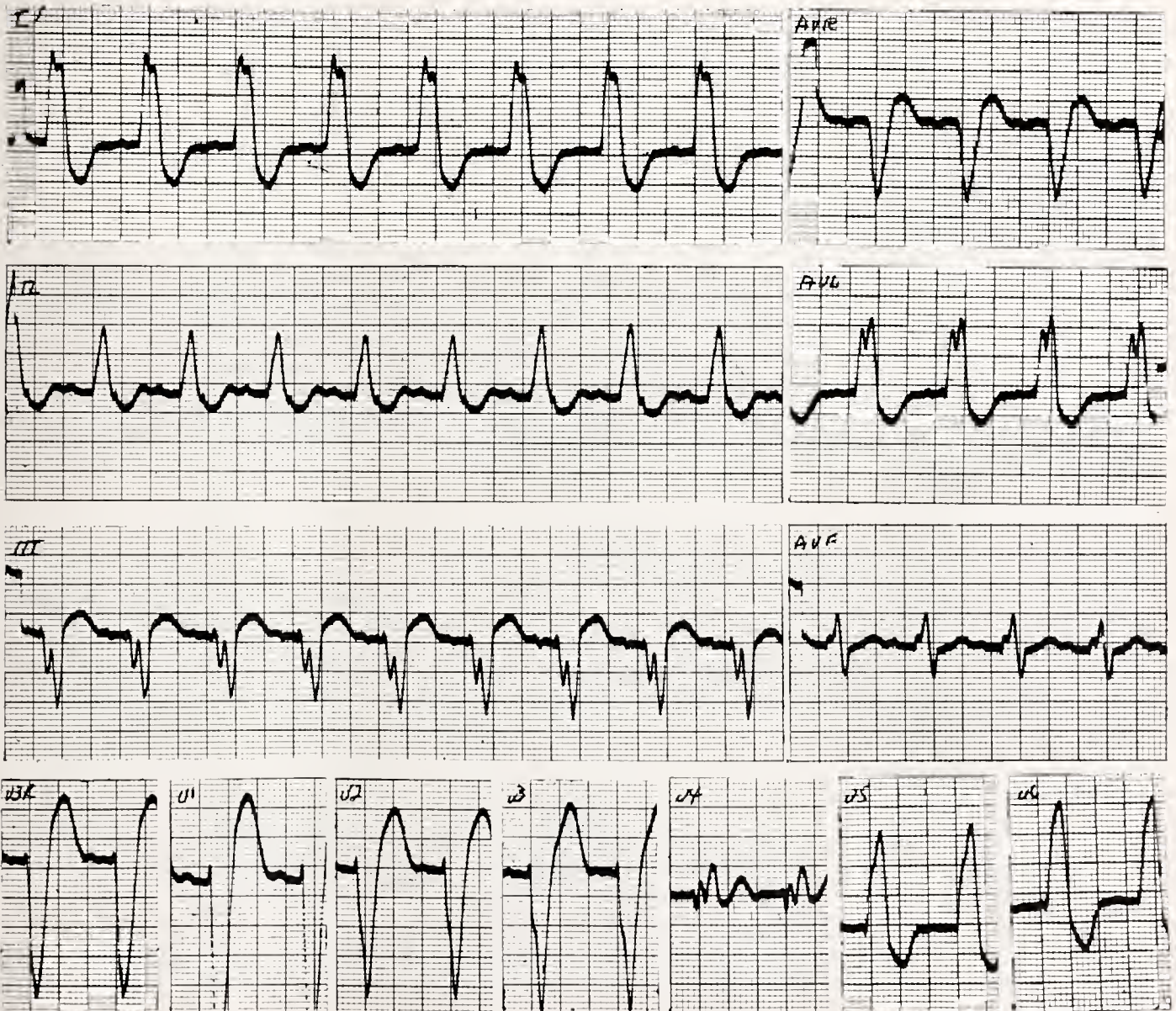


WHAT IS YOUR INTERPRETATION?

AGE: 66 SEX: F BUILD: STOCKY BLOOD PRESSURE: 140/94

MEDICATION: Digitalis, amount not stated.

HISTORY: Mild dyspnea, possible cardiomegaly, 3 weeks.

Answer on Page 201

*James S. Taylor, M.D., Professor of Medicine, The Department of Medicine, University of Arkansas Medical Center.

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

Answer on Page 201





PUBLIC HEALTH AT A GLANCE

PUBLIC HEALTH NURSES IN ARKANSAS

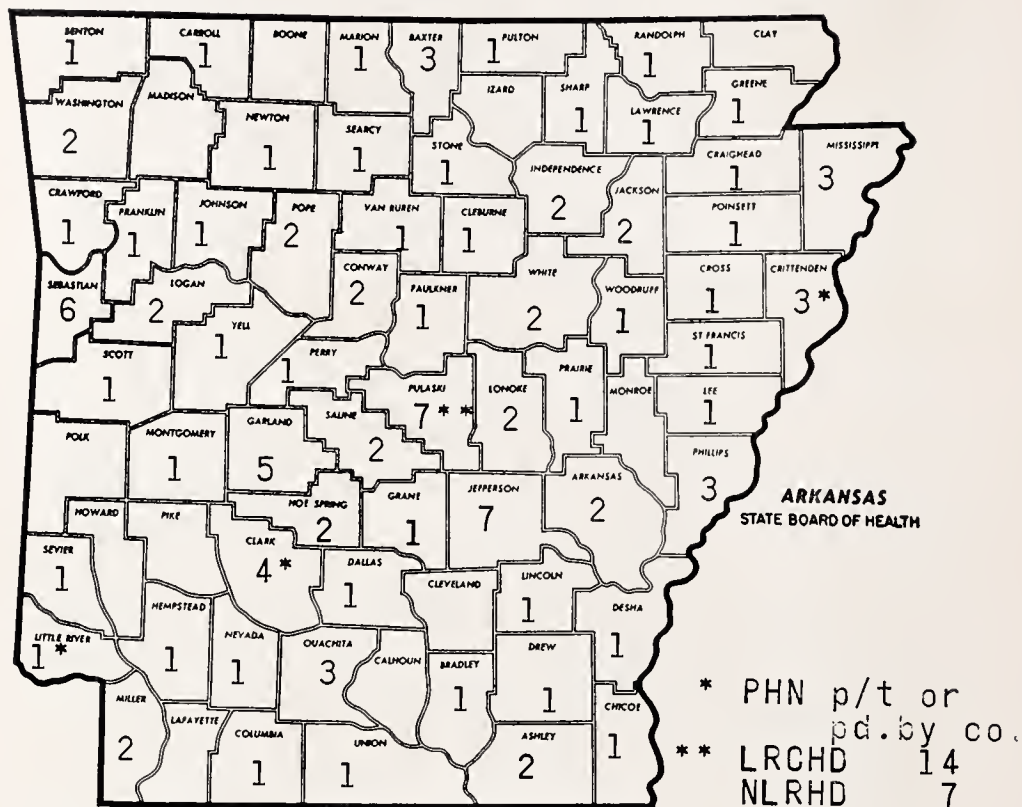
There are 134 public health nurses employed in the state and local health departments at present. Twelve (12) counties are without nursing service; 40 counties have only one public health nurse while 23 counties have two or more.

Public health nurses made 88,992 home and office visits in 1961. The attached chart shows the number of visits in each service.

There were 23,480 people seen in clinics other than immunization clinics.

FEATURES

PUBLIC HEALTH NURSES EMPLOYED IN
ARKANSAS AS OF
AUGUST 15, 1962



HOW MUCH NURSING TIME WAS GIVEN TO THE MAJOR HEALTH PROBLEMS
IN ARKANSAS

SUMMARY OF VISITS BY PUBLIC HEALTH NURSES IN 1961

Type Service	No. Visits		Per Centage
Tuberculosis	26,780	////////////////////	24.5
School	21,073	////////////////////	19.3
Preschool	17,315	////////////////////	15.8
Infant	14,847	////////////////////	13.6
Morbidity	10,767	////////////////////	9.9
Maternity	8,276	////////////////////	7.6
Crippled Children	6,747	////////////////////	6.2
Communicable Disease	1,560	////	1.4
Mental Retardation	1,203	==	1.1
Rheumatic Fever	622	/	.6
		Total Visits (all services)	109,190
		Total Public Health Nurses	133

ARKANSAS STATE BOARD OF HEALTH
Division of Public Health Nursing



EDITORIAL

PARATHYROID HORMONE EFFECTS

Alfred Kahn, Jr., M.D.

THE MODE OF ACTION OF THE parathyroid gland was debated for years. Some postulated that its principal function was the elevation of serum calcium by removal of calcium from bone. Other investigators felt that the principal action was increased urine phosphate excretion. More recently evidence for both modes of action has been found. Canary, Carreon, Bloomer, Kyle, and Meloni have reviewed this subject in hyperparathyroid patients before and after surgery and in a euthyroid patient who inadvertently had a parathyroidectomy. The results of their work are discussed here (*Journal of Clinical Endocrinology*, Volume 22, page 229, March, 1962).

In the euthyroid patient who had a total parathyroidectomy surgery for removal of a thyroid cancer, there was a fall in serum calcium concentration immediately; renal phosphorous clearance fell immediately despite a normal glomerular filtration rate; in other words, phosphorous excretion fell markedly. The same general course occurred in the patients with hyperparathyroidism who had parathyroidectomy. The authors report a period lasting from 2 to 10 days or more before the serum phosphorous level rose. Post-operatively the serum calcium declined.

Canary *et al.* feel that these studies in man corroborate the findings in experimental animals, namely, that extirpation of the parathyroid removes the source of parathyroid hormone, be the patient a euparathyroid or a hyperparathyroid;

this causes immediate reduction of the rate of calcium removal from bone and a marked reduction in phosphorous excretion. Of interest is the slow rise in serum phosphorous after parathyroidectomy; the authors feel that the retained phosphorous may go into the bones to refill a depleted reservoir. Patients who had peptic ulcers and were on therapy containing phosphorous had a more rapid return of serum phosphorous to normal, and it is postulated their bone supplies were not so low. Another possible explanation for the slow return of serum phosphorous is migration of phosphorous across cell membranes to an intracellular position.

It should be pointed out that the parathyroid is not the only endocrine gland related to the metabolism of calcium and to the structure of bone. One of the most rapid types decalcification is that seen in hyperthyroidism. It is of further interest that hypercalcemia is seen at times in hypothyroidism and myxedema. A report to this effect has been made by Lowe, Bird, and Thomas (*Journal of Clinical Endocrinology*, Volume 22, page 261, March, 1962). An exact explanation of this phenomena is not available but the authors feel that in a hypothyroid state calcium uptake by bone is reduced. Perhaps, there is also a reduced excretion of urinary calcium and a hypersensitivity to Vitamin D in hypothyroidism.

Further research in this general field is of interest to the general physician, internist and orthopedist.



The Month in Washington

Washington, D. C.—Reports of possible serious side effects of three drugs led to studies and investigations by the drug industry, the American Medical Association and the Federal government.

Most attention was given to thalidomide, a non-barbiturate which produces sleep without a "hangover." Births of malformed babies, mostly in foreign countries, by mothers who took the drug during pregnancy were widely reported.

The Pharmaceutical Manufacturers Association established a special drug safety group to broaden scientific knowledge regarding predictability of the effect of potent drugs on humans.

The AMA started a special study of thalidomide. A Senate subcommittee opened an investigation. One of the first official acts of the new secretary of Health, Education and Welfare, Anthony J. Celebrezze, was to order a tightening of FDA controls over drug testing.

Thalidomide was first marketed in West Germany about five years ago. It was consumed widely in West Germany, Great Britain, Australia, Portugal and Canada. One of its uses was as an antidote for the morning sickness of early pregnancy. No significant side effects, either proved or suspected, were reported until 1961.

The parent company of Wm. S. Merrell Co. of Cincinnati, Ohio, obtained in 1959 the North American marketing right for the drug. Merrell conducted laboratory and mass clinical tests, put the drug on the market in Canada and in September, 1961, applied for FDA approval for U. S. sales.

Dr. Frances O. Kelsey, a newly employed medical officer at FDA, moved cautiously on the application and withheld approval. In February, 1961, she read a letter in the British Medical Journal suggesting that thalidomide might be causing peripheral neuritis.

For withholding FDA approval of the drug, Dr. Kelsey was awarded the Distinguished Fed-

eral Civilian Service Medal by President Kennedy. The President at the same time renewed his request to Congress that it approve the Administration's drug legislation.

First reports linking thalidomide with birth malformations reached Merrell from the German drug manufacturer in November, 1961, after a German scientist reported such indications at a medical meeting. Merrell promptly sent a warning to Canadian doctors and the approximately 1200 American doctors conducting clinical tests with it. It was requested that the drug not be given to women of child-bearing age. Merrell so advised the FDA at the time also. In early March, 1962, Merrell withdrew the drug from the Canadian market and experimental use in this country, and dropped its FDA application.

The PMA announced establishment and financing of a Commission on Drug Safety to, among other activities, "investigate an unpredictable problem which is assumed to be connected with use of the European drug (thalidomide)." Lowell T. Coggeshall, M.D., a leading U. S. scientist and vice president of the University of Chicago, was named chairman of the commission. He formerly was president of the American Association of Medical Colleges and of the American Cancer Society.

"The basic purpose of our commission is to study the broad and complex problems of making available to the public, with adequate safeguards for both the doctor and the patient, the therapeutic advances which will result from the enormous programs and rapid pace of medical research," Coggeshall said.

"However promising new agents may be in the laboratory, no amount of laboratory experimentation and testing can provide complete assurance of effectiveness or safety when a new drug is administered to a human being. We must attempt to reduce danger to the lowest possible degree without discouraging the imaginative research

from which flows mankind's increasing release from disease."

The AMA Council on Drugs began a comprehensive analysis of the effect of thalidomide on unborn infants.

In a statement, the council said:

"The AMA has been concerned about the reports of distinctive congenital malformations occurring in the offspring of patients receiving thalidomide in early pregnancy . . .

"It has been under clinical evaluation here since 1956. There have been no published reports in scientific journals of such malformations developing in connection with these trials in the United States.

"On the evidence which has been presented, it would appear that the increased incidence of extremelia in Germany, Great Britain and Australia may be related to the use of thalidomide during the early weeks of pregnancy.

"A careful analysis of the whole problem is needed. This has not yet been done and the Council on Drugs proposes to undertake a comprehensive analysis. Through such studies, it is hoped that further knowledge will be gained on the problem of congenital malformations and appropriate measures will be determined to safeguard our population."

FDA Commissioner George P. Larrick and Dr. Kelsey both agreed in testifying before the Senate Subcommittee that Merrell has acted with reasonable diligence in withdrawing thalidomide from the market. Dr. Kelsey said that if the entire matter had been up to her alone she would not have withdrawn it much sooner than did the company.

Larrick also said then that the FDA had not found any infants born deformed in this country as a result of thalidomide administered in the mass clinical testing program. But he said the birth of deformed infants in this country had been reported where mothers had taken the drug after it had been procured in other nations where it had been marketed.

A Federal grand jury was investigating Merrell in connection with another of its drugs, MER-29, which was designed to inhibit formation of cholesterol in the blood.

The FDA in April, 1960, approved an application for marketing the drug. It was an instant success. But it was withdrawn in April of this year after reports that some patients taking it had

developed eye cataracts, and had suffered hair loss, skin changes and leukemia.

The AMA Council on Drugs recently reported that "much longer and more careful studies" were needed to prove the safety of the drug in general or long-term use.

The FDA also investigated enovid, a birth control pill. The FDA said there had been 28 cases reported since September in which women given the contraceptive pill developed a blood clot called thrombophlebitis. Six of them died. But the agency cautioned that fatal blood clots can be caused by many things unrelated to any drug.

The pill's manufacturer, G. D. Searle and Co. of Chicago, said a "supercharged atmosphere over thalidomide" was responsible for the FDA's investigation of enovid.

The company said a woman taking oral contraceptives runs no more risk of blood clots than a woman in normal pregnancy.

It was the second investigation ordered into the contraceptive pill since it was approved for commercial sale in May, 1960, on the basis of what the FDA called "extensive research data."

Military Blood Program Agency Established in Washington

The Military Blood Program Agency, a new organization which the Department of Defense recently directed the Army to set up to coordinate and integrate the plans, policies and procedures of the military departments and the Unified and Specified Commands regarding the collection, processing and distribution of blood and blood products for medical use in emergencies, has been established in Washington, D. C.

The Army Surgeon General has been charged with establishing and operating the new Agency. It will have a small staff of Army, Navy and Air Force officers.

The Military Blood Program Agency will deal directly with the Army, Navy and Air Force, as well as the unified and specified commands, in discharging its Defense-wide responsibilities.

Postgraduate Seminars

The Arkansas Academy of General Practice sponsored a postgraduate seminar in Arkadelphia on July 18 at Clark County Hospital. Dr. George K. Mitchell of Little Rock led the seminar.

On June 19 the Academy sponsored a postgraduate seminar for physicians at Harrison. Speakers

included Dr. Richard Ebert and Dr. James Taylor of the University of Arkansas Medical School and Dr. Edward Massie, head of the cardiology section of Barnes Hospital, St. Louis, Missouri.

The Academy of General Practice requires its members to attend a specified number of hours each year in post-graduate work or forfeit membership.



The University of Texas Southwestern Medical School, through the cooperation of the Dallas Tuberculosis Association, will present the 1962 Ivan H. Mattson, I. Memorial Postgraduate Symposium on Air-Borne Infections, Injury and Intoxication in Dallas, Texas on October 12-13, 1962.

Appraisal of practical clinical laboratory methods and newer diagnostic techniques will be the emphasis of the post-graduate course "Clinical Pathology in Medical Practice", October 23, 24, 25, 1962, to be held at the Medical College of Georgia. Application can be made by contacting Dr. Claude-Starr Wright, Director, Department of Continuing Education, Medical College of Georgia, Augusta, Georgia.

Fourteen postgraduate courses for physicians will be offered by the University of Tennessee College of Medicine from October, 1962 through November, 1963. For additional information, write to the Postgraduate Department, The University of Tennessee Medical Units, 62 South Dunlap, Memphis 3, Tennessee.

Course in Nasal Surgery to Be Held

An introductory course in "Expanded Surgery of the Nasal Septum and Closely Related Structures" will be presented at the Loma Linda University School of Medicine, Los Angeles, October 29 to November 1.

Further information may be had by writing to Dr. Leland R. House, Head of Department of Otolaryngology, Loma Linda University School

of Medicine, Los Angeles 33, or to the American Rhinologic Society, 530 Hawthorne Place, Chicago 13.

American Rhinologic Society to Hold Annual Meeting in Los Angeles, November 1-2

The American Rhinologic Society will hold its eighth annual meeting in the Statler Hilton Hotel, Los Angeles, November 1-2.

Course in Electrocardiography

The University of Texas Postgraduate School of Medicine is pleased to announce a course in "Deductive Electrocardiography," to be conducted by the celebrated electrocardiologist, Dr. Demetrio Sodi-Pallares, of the National Institute of Cardiology, Mexico City. The course will be held on the evenings of Monday through Friday, December 3-7, 1962, in the Auditorium of The University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, Texas.

Tuberculosis Meeting

The annual meeting of the Arkansas Tuberculosis Association, Arkansas Thoracic Society and Arkansas Conference of Tuberculosis Workers will be held October 4-5, 1962, at the Marion Hotel, Little Rock, Arkansas.

The program for the ninth annual Southeast Missouri Cancer Conference has been arranged and invitations are being issued to physicians of Southern Illinois, Western Kentucky, Northern Arkansas, Northwestern Tennessee, and Southeastern Missouri.

The conference is scheduled for Sunday, October 7, at Cape Girardeau. All sessions will be held at the Colonial Tavern Restaurant. Registration for the conference will start at 12:30 and the first session will get under way at 1:30. The banquet and evening session will begin at 6:30.

Guest speakers of the conference will be William T. Newton, M.D., Washington University School of Medicine, speaking on "Immune Response to Cancer and the Role of Virology"; Paul J. Murison, M.D., Tulane University School of Medicine, "Endocrine Therapy in Carcinoma"; Edward T. Krementz, M.D., Tulane University School of Medicine, "Regional Chemotherapy of Cancer"; and Gerald O. McDonald,

M.D., University of Illinois College of Medicine, "Controlling Cancer Dissemination".

The conference is sponsored by the American Cancer Society, the Missouri State Medical Association, the American Academy of General Practice, and the Cape Girardeau County Medical Society.

New York Academy of Sciences Conference

The Conference on "Fetal and Infant Liver Function and Structure", will be held at the Henry Hudson Hotel, New York City, November 7, 8, 9 and 10, 1962, under the auspices of the New York Academy of Sciences.

Invitations may be obtained from Mrs. E. T. Minor, Executive Secretary of the New York Academy of Sciences, 2 East Sixty-Third Street, New York 21, N. Y.



OBITUARY

Dr. Saul Sternberger, Jr.

DR. SAUL STERNBERGER, JR., 37, of Lepanto died July 13 at a Memphis hospital. He was a native of Brownsville, Tennessee, and attended Southwestern College and Memphis State University before receiving his medical degree from the University of Tennessee College of Medicine at the age of 21 years. He had practiced in Lepanto since 1956.

* * * *

Dr. J. B. Wharton, Sr.

DR. JOSEPH BURLESON WHARTON, SR., 84, the dean of the El Dorado doctors, died in an El Dorado hospital June 21 after a fortnight's illness.

A physician and surgeon prominent throughout the state, Dr. Wharton practiced medicine in El Dorado for 62 years. He was actively engaged in practice until his final brief illness.

Dr. Wharton attended the University of Texas and was graduated from the Emory School of Medicine in 1900.

He was a member of the First Baptist Church, of the Union County Medical Society, and of the Arkansas Medical Society, and an honorary life member of the American Medical Association.

ABSTRACTS

Infectious Asthma: Analysis of Asthmagrams of 100 Cases and Critical Review—O. Swineland, Jr., E. R. Johnson, Jr., H. M. Cook, Jr., and L. Ochota

Ann Allergy—Vol. 30:155 (March) 1962

Asthma is due to multiple causes, of which infection is one. This detailed analysis of 100 cases illustrates major problems in diagnosis and treatment. Texts, case reports, and tables illustrate these and other points. Infection is usually in sinuses or bronchi. Infectious asthma differs sharply with allergic asthma. Major differential criteria are as follows: cough precedes and is prominent throughout attacks; there is pus in or from head or chest; redness is noted in nasal and pharyngeal membranes; and the eosinophil count in the blood exceeds 5%. Infection in asthma is treated like other respiratory infections, but control of associated allergy is often necessary for prolonged relief. Infection was the only demonstrable cause in 6 cases. The coincidence of infection and other types of causes was as follows: allergy 88, physical factors 62, psychogenic factors 23, chronic lung disease 20, possible reflex stimuli 14, cardiac asthma 1, and bronchial obstruction 1. Maximum relief of infectious asthma requires recognition and treatment of other concurrent causes.

Chronic Cor Pulmonale—I. Mack, M. W. Anderson, H. Goldberg, and T. Mattingly

Dis Chest—Vol. 41:477 (May) 1962

The lack of specificity of the term "cor pulmonale" is like that of the term "Bright's disease." Two other terms are suggested: (1) pulmonary hypertensive vascular disease and (2) pulmonary hypertensive cardiovascular disease. The difficulties of both roentgenography and electrocardiography in the establishing of a diagnosis are discussed. In chronic diffuse obstructive emphysema, intensive treatment of the bronchopulmonary disease to improve ventilation, reduce hypoxia, and increase the size of the pulmonary vascular bed is necessary if specific cardiac therapy is to be effective. In the chronic alveolar hypoventilation syndromes, improvement of alveolar ventilation is the goal of treatment, often necessitating ventilatory aid.



PERSONAL AND NEWS ITEMS

Dr. Drompp to Head Orthopedic Services At Med Center

Little Rock — A new director of orthopedic services has been added to the teaching and clinical staff at the University of Arkansas Medical Center.

Dr. Benjamin W. Drompp, 41, who has been associate professor in orthopedics at Wayne State University College of Medicine in Detroit, replaces Dr. Dana M. Street as head of the Division of Orthopedic Surgery. Dr. Street has taken a new position with a hospital in California.

Dr. Drompp's appointment was announced by Dr. Winston K. Shorey, Dean of the School of Medicine.

Dr. Drompp is a member of the American Medical Association and of the American Academy of Orthopedic Surgeons.

Paragould Has New Physician

Dr. James F. Rozelle, a 1961 graduate of the University of Tennessee Medical School, has opened an office formerly occupied by Dr. Wendell Gordon in Paragould.

Dr. Ramsay Joins Little Rock Health Office

Dr. Rex Ramsay, Jr., a native of Nashville, Arkansas, recently joined the U.S. Department of Public Health at Little Rock, serving as a pediatrician. He is located at the University hospital.

Dr. Abraham Speaks to Southeast Arkansas Doctors

Dr. Jim Abraham of Little Rock was the principal speaker at a meeting of Southeast Arkansas doctors and their wives last week at a dinner meeting in Dermott. Doctors and wives attended from McGehee, Dumas, Monticello and Eudora.

Fayetteville Doctor to Head UA Health Unit

The University of Arkansas has established a full-time student health service on the Fayetteville campus and appointed Fayetteville physician, Dr. W. J. Butt, to direct its work.

Dr. Butt's Appointment became effective July 1. He has served for 22 years as associate physician of the health service. The late Dr. Fount Richardson organized the health service and served as its chief physician until his death in 1961. Both doctors served on a part-time basis while maintaining their private practices.

Dr. Henley Addresses Medical Assistants

Dr. Paul G. Henley was guest speaker at the June meeting of the Union County Medical Assistants Society in El Dorado June 18.

Dr. Davenport to Enter Practice in Van Buren

Dr. Scott Davenport has entered the practice of medicine with Dr. Millard C. Edds in Van Buren. Dr. Davenport has just completed his internship at Albuquerque, N.M. Work has begun on a new clinic for Dr. Edds and Dr. Davenport.

Murfreesboro Physicians Form Partnership

Dr. W. R. Beatty of Murfreesboro has joined partnership with Dr. G. J. Floyd, Jr. in the practice of medicine. They will maintain their offices in the new Floyd-Beatty Clinic.

Dr. Friedman Sisco Speaks to Rotary

Dr. Friedman Sisco, a Springdale physician, recently spoke to a meeting of the Springdale Rotary Club. The topic of his talk was socialized medicine.

Dr. Hunter Joins Mobley Clinic Staff

Dr. Jean Hunter has joined the staff of the Mobley Clinic in Morrilton and will be associated with them in the practice of medicine, specializing in pediatrics. Dr. Hunter is a graduate of the University of Arkansas Medical School.

Ashdown Clinic Has New Doctor

Dr. James Armstrong, a native of Little Rock, recently became associated with Drs. Joe Shelton, Jr., and Norman Peacock, Jr., in the practice of medicine and surgery at the Ashdown Clinic.

Dr. Armstrong received his medical degree from the University of Arkansas Medical School and interned at the Hillcrest Medical Center in Tulsa, Oklahoma.

Paragould Doctor Joins Jacksonville Physicians

Dr. Rex N. Moore, formerly of Paragould, has moved to Jacksonville where he will be associated with Drs. Jan W. Crow, and Thomas H. Wortham. He will also be on the staff of Rebsamen Memorial Hospital.

De Queen Clinic Hospital Adds Two to Staff

Dr. Eugene A. Joseph and Dr. James Frank Daniel have been appointed to the staff of De Queen Clinic and General Hospital.

Dr. Joseph, from Helena, is a 1961 graduate of the University of Arkansas Medical School and served his internship at St. Vincent's Infirmary in Little Rock.

Dr. Daniel graduated from the University of Arkansas Medical School in 1960 and served his internship at University Medical Center and had general practice residency at the Huey P. Long Charity Hospital in Pineville, Louisiana. He is a native of Rohwer.

Dr. Sexton Elected Chief of Staff

Dr. G. A. Sexton has been elected Chief of Staff of Forest Memorial Hospital at Paragould, succeeding Dr. A. M. Bradley.

Other officers elected were Dr. J. N. Laney, vice chief of staff; Dr. J. Max Roy, secretary; Bob McCuistion, medical staff officer; Dr. H. N. Coghburn, chief of medicine; Dr. A. M. Bradley, chief of obstetrics and new borns and Dr. George McPhail, chief of surgery.

Dr. C. Crawley and Dr. Herbert Hollis were named to the liaison committee.

VA Scientist Accepts NASA Research Position

Dr. Jacob Shapiro, principal scientist for the Radioisotope Service at the Veterans Administration Hospital in Little Rock, has accepted a position as a research scientist with the life sciences division of the National Aeronautics and Space Administration Ames Research Center at Moffett Field, California.

He will study the metabolism of brain tissue, particularly under conditions in outer space. He also will do research on the effect of space conditions on bone marrow.

His wife, Dr. Lois Lowden, who is completing

ANSWER—Electrocardiogram of the Month

RATE: 90 RHYTHM: Sinus

PR: 0.19 sec. QRS: 0.17 sec. QT: 0.39 sec.

INTERPRETATION: Abnormal. Left bundle branch block.

COMMENT: This tracing was recorded as a part of a routine diagnostic survey. The patient had had vague symptoms of "indigestion" with chest pain during the previous 12 months, so it is presumed that the left bundle branch block was due to previous myocardial infarction. Follow-up over a considerable period of time disclosed no change in the electrocardiogram but symptoms highly suggestive of anginal syndrome did occur a few months later.

ANSWER—What Is Your Diagnosis?

AO2-32-15 7 year old colored female

There was a history of ear infections, pain and swelling of one leg, anemia, and a large spleen. She was referred to this hospital because of episodes of abdominal pain and nausea and vomiting. Red blood count 2,200,000/cu.mm.

DIAGNOSIS: Sick cell anemia.

X-RAY FEATURES: There is marked eburnation and thickening of the parietal bones on both sides with radiating bony striations giving a hair-on-end appearance. This change indicates hyperactivity of the bone marrow and is characteristic of hemolytic anemias. It is, however, much more common in the Cooley's or Mediterranean anemia than in sickle cell anemia.

a three-year residency in psychiatry at the University Medical Center, has accepted a fellowship in child psychiatry at the Stanford University Medical School at Palo Alto. The couple will live in Palo Alto with their two children.

Little Rock Physicians Present Rotary Program

Three Little Rock doctors presented before the July 26 meeting of the Little Rock Rotary Club a program entitled "Recent Advances in the Surgical Specialties of Ear, Eye and Plastics."

Dr. H. A. Ted Bailey, Otologist, presented a colored film showing the steps followed in his clinic in the medical and audiometric examination of a hard-of-hearing patient. This was followed by some of the highlights of a surgical procedure currently being used to correct one form of deafness.

Dr. Robert A. Calcote, Ophthalmologist, gave a short historical review of contact lenses and the medical indications for their use.

Dr. James G. Stuckey, Plastic Surgeon, presented "before and after" slides of surgically corrected noses and ears with a brief explanation of just how plastic repair is performed.

American Airlines Honors Dr. Robins

Dr. R. B. Robins of Camden was recently made an Admiral of the American Airlines Flagships at a meeting of the Camden Lions Club. Alex Alpers, sales representative who presented the award, said that the airlines get help and support from many individuals in the U.S.A. and the company wanted to honor these citizens; so the Admiral certificate was created.

Internist Moves to North Little Rock

Dr. Joe P. Stanley, a native of Carlisle, has moved to North Little Rock from Beckley, West Virginia and has opened his offices there for the practice of Internal Medicine. He is the first specialist to move to North Little Rock since the new Memorial Hospital was opened.

Dr. Stanley, a 1955 graduate of the University of Arkansas Medical School, interned at Charity Hospital in New Orleans and later became a staff physician at a hospital in Williamson, West Virginia. He received flight training in the Navy, and after his discharge, went into a three-year residency at the Miners Memorial Hospital Association's hospital in Beckley, West Virginia.

He is married and the father of four children.

Dr. Dinning to do Research in Jordan

Dr. James S. Dinning, head of the Department of Biochemistry at the University of Arkansas Medical School, has left Little Rock for Jerusalem, where he will conduct a six month study of anemia in children. The National Institutes of Health of the Public Health Service will finance his travel and study expenses.

Salem Physician Begins Surgical Residency

Dr. Carl Arnold, a physician in the Salem Clinic, Salem, Arkansas, has taken leave to enter surgical Residency in Little Rock. He will return to Salem about the time the new Fulton County Hospital is completed.

Dr. Verser Speaks to Exchange Club

Dr. Joe Verser of Harrisburg, president-elect of the Arkansas Medical Society, recently spoke before a meeting of the Jonesboro Exchange Club. He discussed the various types of mental illnesses and symptoms and descriptions of each.

Academy of General Practice Holds Seminar

The Arkansas Academy of General Practice conducted a Regional Postgraduate Seminar on the subject of sports injuries at Russellville on August 5.

Among the featured speakers were Dr. John McCullough Smith, team physician for Little Rock Central High School, and Dr. Coy C. Kaylor, Fayetteville orthopedic surgeon.



PROCEEDINGS OF SOCIETIES

Ouachita County

The Ouachita County Medical Society met in regular monthly dinner session at the Camden Hotel on Tuesday night, August 7, 1962. A very interesting talk was given on "Ectopic Pregnancy" by Dr. C. E. Hyman of Pine Bluff.

Dr. R. C. Lewis, President, appointed an Anti-Polio Committee composed of Drs. Bruce Ellis, Tom Meek and L. E. Drewrey to conduct a county-wide Sabin oral polio vaccine campaign in conjunction with the Statewide campaign to begin on Sunday, September 30th.

Baxter County Medical Society

The Baxter County Medical Society held a scientific meeting Friday night July 27th, at the home of Dr. Ben N. Saltzman, Secretary. Dr.

John F. Guenther, President, presided. The meeting was well attended by the members of the Society and invited guests including physicians from nearby counties and nurses of the area.

Speakers were Dr. C. V. Dowling, Internist and Cardiologist and Associate Professor of Medicine, University of Tennessee, Memphis, Tennessee, and Dr. Hector S. Howard, Thoracic and Cardio-Vascular Surgeon and Associate Professor of Surgery, University of Tennessee, Memphis, Tennessee. They delivered an outstanding slide presentation and review of many interesting Cardio-Vascular cases. They demonstrated a case involving the insertion of a pace-maker for ventricular stimulation of the heart.

The physicians present had an opportunity to examine this patient. Following the presentations a question and answer session was held.



NEW MEMBERS

DR. JAMES H. ABRAHAM is a new member of Pulaski County Medical Society. He is a native of Little Rock, Arkansas, and his preliminary education was received from Hendrix College.

His M.D. degree was received from the University of Arkansas Medical School in 1955. Dr. Abraham's specialty is internal medicine and his office is located at 814 North University in Little Rock.

Pulaski County Medical Society announces that DR. WESLEY M. HONEYCUTT is a new member. A native of Nashville, Arkansas, he received his preliminary education from the University of Arkansas. In 1956 he received his M.D. degree from the University of Arkansas Medical School. His specialty is dermatology and his office is located at 536 Waldon Building, Little Rock.

A new member of Faulkner County Medical Society is DR. NEIL C. STONE. He is a native of Warsaw, New York. His preliminary education was obtained from the University of Rochester located at Rochester, New York. He received his M.D. degree from the Cornell University Medical College in 1925. Dr. Stone practiced in Poughkeepsie, New York from 1930 until 1962. He now holds the position of Medical Director at Arkansas Children's Colony in Conway, Arkansas.

DR. DONALD H. McCLANAHAN is a new member of Cleburne County Medical Society. A native of DeWitt, Arkansas, he received his preliminary education at the University of Arizona in Tucson, Arizona. His M.D. degree was received from the University of Arkansas School of Medicine in 1961. Dr. McClanahan is a general practitioner with his office at 600 West Main Street in Heber Springs, Arkansas.

Contributors to the American Medical Association Education and Research Foundation During July 1962

Zoltan L. Agardy, Little Rock.....	\$10.00
Joseph E. Cross, DeWitt.....	10.00
Mrs. H. W. Ward, Fayetteville.....	5.00
Sevier-Polk Medical Auxiliary.....	5.00

	\$30.00

Contributors to the American Medical Association Education and Research Foundation During the Month of June 1962

Dr. Ellery C. Gay, Little Rock.....	\$25.00
Dr. Hunter C. Sims, Jr.....	50.00

TOTAL.....	75.00



BOOK REVIEWS

GYNECOLOGY AND OBSTETRICS, by John William Huffman, M.D., Professor of Obstetrics and Gynecology, Northwestern University Medical School, Attending Gynecologist and Obstetrician, Passavant Memorial Hospital, Attending Gynecologist and Head of Department of Gynecology, Children's Memorial Hospital, pp. 1190, illustrated, published by W. B. Saunders Company,

Philadelphia and London, 1962.

This text, in the reviewers opinion, suffers somewhat from including gynecology and obstetrics in the same volume. However, both sections are interesting and well written. The book is amply illustrated. It has a fairly conventional format. Although the book is in no way unusual, it is to be considered an excellent text and is recommended to practitioners and medical students. AK

UROLOGY IN MEDICAL PRACTICE, by Frank C. Hamm, M.D., M.S., F.A.C.S., Professor of Urology, Department of Surgery, State University of New York, Downstate Medical Center; Director of Urology, Kings County Hospital; Chief Attending Urologist, The Brooklyn Hospital; Consulting Urologist, Brooklyn Veterans' Hospital, Maimonides, Lutheran and St. Mary's Hospitals, and Sidney R. Weinberg, M.D., F.A.C.S., Associate Professor of Urology, Department of Surgery, State University of New York, Downstate Medical Center; Attending Urologist, Kings County Hospital; Consulting Urologist, Brooklyn Veterans' Hospital; Associate Attending Urologist, Long Island College Hospital; Assistant attending Urologist, Maimonides Hospital, Second Edition, illustrated, pp 323, published by J. B. Lippincott Company, Philadelphia and Montreal, 1962.

This small book consisting of 323 pages of information about the urinary tract is of interest to the practicing physician and medical student. It is not designed as a textbook for urologists although the authors state that it has explanation of some of the procedures that resident urologists perform. The book is exceptionally well illustrated. It is written well. The organization is rather conventional. There is a chapter on the adrenal cortex and the reviewer would like to see this chapter expanded considerably. In general, this book is very interesting and worthwhile. It is recommended to medical students and practicing physicians. AK

DIAGNOSIS AND MANAGEMENT OF PAIN SYNDROMES, by Bernard E. Finneson, M.D., F.A.C.S., Neurosurgeon, The Episcopal Hospital, Philadelphia, illustrated, pp. 261, published by W. B. Saunders Company, Philadelphia and London, 1962.

This short book discusses the location and origin of many types of pain. It is oriented along neurological and neurosurgical lines. It is not an effort to describe the pain of abdominal or thoracic disease, for example. The book contains numerous excellent sketches. The organization of the book is very good. There is an excellent chapter on headaches. Of particular interest is the chapter on pain originating in the neck. This book is heartily recommended to the practicing general physician, internist and general surgeon. AK

White Slide Dots: A Time Saving Method—
J. W. Grayson, Jr.

Amer J Clin Path—Vol. 37:644 (June) 1962

White ink was substituted for black India ink as a dotting medium for cytologic and histologic slides. This technique greatly facilitates the location of areas of interest against the usual black background of the microscope.



Sponsored by Arkansas Tuberculosis Association

CHRONIC BRONCHITIS: A FIVE-YEAR FOLLOW UP

When the fate of chronic bronchitic patients was traced five years after first diagnosis, it was found that the number of deaths was twice that expected. The excess mortality was due primarily to respiratory diseases. Deaths due to circulatory conditions were also excessive.

Many aspects of the natural history of chronic bronchitis have been subjected to scrutiny, but little attention has been paid to prognosis in terms of life expectancy. From the clinical standpoint, a knowledge of the likely outcome for individual patients is most desirable and, as in other potentially fatal maladies, this may conveniently be expressed in terms of five-year survival.

In this study the fate of a group of bronchitic patients of different ages and with varying severity of symptoms was sought after a lapse of five years. Their clinical state was assessed at the beginning and end of the period, and the number of fatalities and causes of death were determined as far as possible.

The series consists of 312 civil servants, mostly clerical workers, messengers, attendants, and industrial workers, who attended the Bronchitis Clinic of Brompton Hospital during the period from March, 1951, to September, 1953.

The initial selection was based upon sickness records, which showed either three absences from work during one year with a diagnosis of bronchitis, or two such absences, each lasting more than two weeks.

COUGH AND SPUTUM

The criteria for acceptance were cough and sputum for at least a year, though not necessarily continuous, which could not be attributed to

any other important or precipitating disease of the respiratory, cardiovascular, or other systems. Disability from either breathlessness or recurrent infections was the rule, the method of selection being such that patients were called for interview as soon as they were observed to be having repeated sickness absences from bronchitis.

Altogether, 398 such patients were referred to the clinic. A full questionnaire, including history, physical examination, and roentgenograms of the chest, was completed in 312. At the end of five years, the survivors were recalled for a second clinical and roentgenographic examination.

Seven of the patients were untraced. Of the remaining 305, 96 had died at the end of five years, the certified cause of death being known in 92. The cause used in the analysis was the underlying cause which started the chain of events leading to death rather than the ultimate mode of dying. The greatest number of deaths was due to respiratory causes, a total of 57. The underlying cause of death in each of the 57 appeared to be bronchitis and/or emphysema. Cor pulmonale was listed in seven.

Cancer was responsible for seven deaths and diseases of the circulatory system for 18. The other deaths of known cause were due to cerebral vascular accidents (three) and motor accidents and a variety of other conditions.

Two hundred and eighty of the patients were men and 25 were women; 77 per cent of the men were between the ages of 45 and 64.

DEGREE OF BREATHLESSNESS

The clinical assessment at five years was compared with the degree of breathlessness at the patient's first interview.

Degrees of breathlessness were defined as *mild*, meaning no breathlessness or only at heavy work; *moderate*, meaning capable of light work, breathless on walking quickly or hurrying, able to climb

V. C. MEDVEL, M.D., and NEVILLE C. OSWALD, M.D., *Thorax*, March, 1962.

12 stairs without undue distress; *severe*, meaning capable of sedentary work, breathless on walking at moderate speed on the flat or climbing 12 stairs, or greater degrees of breathlessness.

The assessment of "same, better, or worse" was based on breathlessness only. Of the 305 patients followed for five years, 136 had mild, 95 had moderate, and 74 had severe breathlessness.

The proportion of patients in whom breathlessness was the same or improved was directly related to age and to severity of symptoms at the first interview, except in the age group 60 to 74, in which the moderately breathless fared rather better than the mildly breathless.

The gradient of mortality is steepest in the younger patients, becoming progressively less steep in the two older groups (50 to 59 and 60 to 74). The serious prognostic significance of severe breathlessness in young patients clearly is seen when their mortality is compared with that of older patients with milder degrees of breathlessness.

RATIO OF OBSERVED-EXPECTED DEATHS

The ratio of observed to expected deaths in this survey was 4:2 in men, 3:3 in women. The

respiratory and circulatory deaths together account for the excess mortality. The excessive number of circulatory deaths must be accepted as significant.

The ratios of observed to expected deaths fell with increasing age, a fact not easily explained. They suggest that bronchitis of sufficient severity to cause sickness absences runs a more rapidly progressive course in young adults than it does in later life, and the five-year death rate of 38 per cent for severely breathless bronchitics under the age of 50 is ominous.

The general pattern of clinical status after five years is to be anticipated. The proportion of patients in whom breathlessness was the same or better declined with advancing years and the death rates increased. A moderately breathless bronchitic in the fifties was found to have a roughly equal chance of being the same or better, worse or dead, after five years. These figures may then be taken in conjunction with the causes of death which suggest that, should he die, he has roughly an 80 per cent probability of dying from a respiratory or circulatory cause.

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EARLY RECOGNITION OF GASTROINTESTINAL DISEASE IN INFANTS

Betty Ann Lowe, M.D.

Southern Clinic
Texarkana, Arkansas

WITHIN THE PAST TWENTY years many advances have been made in decreasing neonatal mortality. This has been achieved by more prompt diagnosis and management in conditions presenting in the newborn. This paper deals with the recognition and management of gastrointestinal disturbances. In one large series, congenital malformations accounted for 26 percent of the neonatal deaths of full term and premature infants. 48 percent of these malformations involved the gastrointestinal tract.¹ In newborn infants the gastrointestinal tract commonly presents problems that, if promptly diagnosed and treated, are associated with normal existence for the individual.

Since prompt diagnosis and treatment in these infants is essential to survival, routine care of the newborn is an important part of anyone's practice who deals with infants. The most important step in the case of the newborn is the initial physical examination. This is usually done by the general practitioner, and he has the advantage of full knowledge of family history, health of the mother, and the course of labor and delivery. The importance of full knowledge of the mother's pregnancy and the course of labor can be illustrated by the occurrence of hydramnios, which occurs in about one out of every 232 deliveries. Almost 50 percent of the offspring of normal mothers with hydramnios were abnormal in a series described by Lloyd and Clatworthy. If all mothers with hydramnios, including those with toxemia

and diabetes, were included, 17 percent had abnormal children. A common anomaly found in these children is esophageal atresia or high intestinal obstruction. In 45 cases of proximal small bowel obstruction, 47 percent gave a history of hydramnios. In 53 cases of esophageal atresia 13 percent had hydramnios.² The presence of one anomaly should alert one to the presence of others, and the physical examination should be even more detailed. Anomalies of the genitourinary tract are more common in children with undescended testes and hypospadias. In Gross's series of esophageal atresias, 33 percent had other anomalies, 9 percent of which required further surgical correction.³ Some of these anomalies, such as club feet, malformed ears, and skeletal anomalies are easily recognized. An imperforate anus should be obvious, but occasionally a dab of meconium on the perineum is taken as proof that the anus is patent, only to discover later that the infant has an imperforate anus with a recto-vaginal or recto-perineal fistula. Choanal atresia may not be obvious, the infant being normal in outward appearance, but unable to breathe. The use of a plastic mouth airway establishes respirations, and attempts at passing a catheter through the nares meets with obstruction. Roentgenograms will show blockage of the posterior airway. (Figure 1.) Palpable abdominal masses, which may or may not give rise to signs of obstruction, are always abnormal. Statistically these are more commonly abnormalities of the genitourinary tract.

Most newborns are full term, born following an uncomplicated pregnancy and delivery. Feed-

*Given at the Hope Regional Postgraduate Seminar 3/9/61 for the American Academy of General Practice.

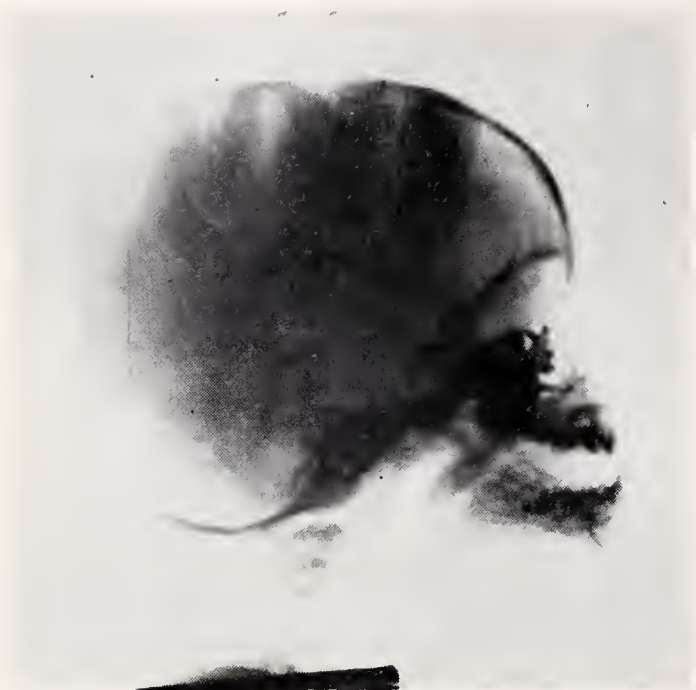


FIGURE I.

Roentgenogram taken with lipiodal instilled through the nares showing choanal atresia with no radio-opaque material in the posterior pharynx.

ings are accomplished with little difficulty, and the neonatal course is uneventful. Newborns have been swallowing for some time in-utero, and this is usually a well established function in which the infant should have no difficulty. Air normally enters the stomach almost immediately, the small bowel in two to twelve hours, and the colon within 24 hours. Digestion is as competent as in older infants, and duodenal enzymes, except for amylase, are present. The first meconium stool is passed in 24 hours by 94 percent of normal infants.⁴ Meconium is passed for two or three days, then transitional stools, which may be loose and greenish, are passed for a day or two, and then regular fecal stools occur. The number of stools is variable, breast fed babies having more than artificially fed infants, and the actual type of stool is much more important than number.

When the initial physical examination shows no abnormalities, there are certain symptoms which point to difficulties within the gastrointestinal tract. Regurgitation, vomiting, hematemesis, distention and diarrhea are the usual manifestations of gastrointestinal disturbances in infants.

Vomiting of the first feedings occurs fairly frequently, but it should be evaluated to rule out an underlying disorder. A common cause for vomiting in the newborn, not associated with choking or drooling, for want of a better name can

be described as "simple regurgitation." These babies look and act normal, but for the first day or so persist in regurgitating part of their feedings. They will usually be hungry and willing to nurse again following regurgitation. The material is usually mucous or amniotic fluid. A catheter should be passed into the stomach. If, by the absence of other findings in a normal infant, this condition can be diagnosed, it can usually be controlled by withholding a couple of feedings, or doing a gastric lavage with a small polyethylene catheter and 10-15 c.c. of normal saline. Why these babies vomit is unknown, but a variety of factors such as swallowed amniotic fluid, maternal medication, or minimal intracranial injury have been mentioned.

Regurgitation and excessive mucous of a serious nature are associated with tracheo-esophageal fistula and esophageal atresia. These are of six types, of which over 90 percent are Type C as described by Gross.⁵ (Figure II.)

Mucus and saliva collect in the abnormal pouch, and the infants will be noted to drool and have difficulty swallowing and may choke even before the first feeding. The most dangerous problem here, especially if the child is inadvertently fed, is spillage of milk or secretions into the lungs with resultant pneumonia. Air readily enters the stomach from the trachea in Type C, and the abdomen



FIGURE II.

Type C tracheo-esophageal fistula. X-ray taken with lipiodal instilled in the upper esophageal pouch showing spillage into the trachea, also showing the lower esophagus entering the trachea through a fistula.

may be distended. Diagnosis should be made before the infants are fed. In any suspicious case this can be done by passing a small catheter down the esophagus until resistance is met. An x-ray will then show the distal end of the catheter in a blind pouch. This can be more clearly shown if one or two c.c. of non-irritative radio-opaque material, such as lipiodal, is introduced through the catheter. A stomach distended with air, but with no signs of obstruction, may also be seen. Therapy is prompt surgical correction, and if done in Centers where the problems of newborn surgical techniques are understood, the mortality is small. If these children must be transported, careful repeated aspiration of the esophageal pouch should be done to prevent aspiration pneumonia, which is a major cause of death in these infants.

The following conditions are also manifest by regurgitation of feedings in otherwise normal appearing infants. Achalasia or cardiospasm is not organic obstruction of the cardia, but is esophageal dilatation and is probably due to failure of coordination of the mechanism of the cardia, preventing passage of food into the stomach. Chalasia or cardio-chalasia is more common, and is the opposite of achalasia. There is persistent

relaxation of the lower end of the esophagus allowing regurgitation of stomach contents when the baby is in the horizontal position.⁷ Other abnormalities, such as esophageal stenosis, or hiatal hernia, also cause regurgitation of food. These conditions can be diagnosed by radiological technique, using a swallow of radio-opaque material such as lipiodal. Chalasia may be demonstrated by putting the baby in the horizontal position demonstrating the easy reflux of lipiodal from the stomach into the esophagus. (Figures III and IV.)



FIGURE III.

Chalasia. During a lipiodal swallow the lower end of the esophagus is persistently relaxed, allowing free flow of stomach contents into the esophagus.

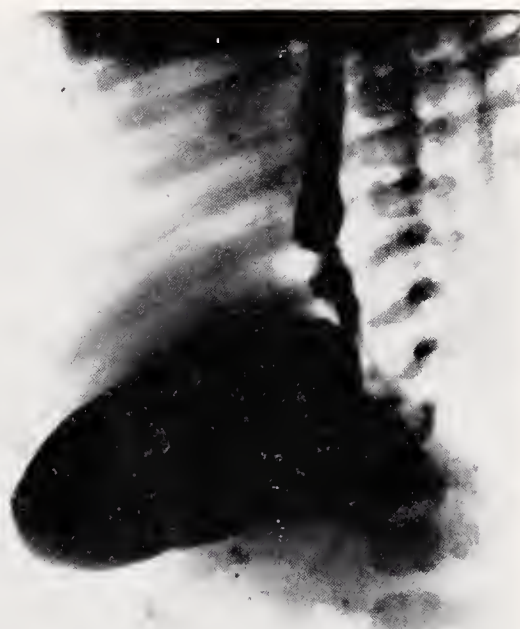


FIGURE IV.

A barium swallow in an infant with vomiting and hematemesis since two weeks of age shows a hiatal hernia.

In diaphragmatic hernia, which is more commonly due to a persistent foramen of Bochdalek on the left, the infant usually shows immediate signs of respiratory distress at the time of delivery and may remain cyanotic. This is due to herniation of the abdominal contents into the chest cavity with compression of the lungs. These infants have a characteristic look, inasmuch as the abdomen is quite flat and seems to be empty of contents. An x-ray may show air-filled loops of bowel within the chest, and bowel sounds can be auscultated over the chest.

Treatment of these conditions, other than diaphragmatic hernia, may not be initially surgical. Infants with chalasia and achalasia do well when

kept in an upright position for one hour after feedings. Feedings can be thickened by the addition of one ounce of cereal to each eight ounces of formula if vomiting does not cease with the upright position. In chalasia or cardiospasm, antispasmodics may be tried. Some infants with chalasia will recover esophageal function after a few months. If the infants fail to gain weight, further therapy may have to be considered. The most common complication, especially in esophageal stenosis and hiatal hernia, is esophagitis due to repeated irritation by gastric contents. This is usually manifest by vomiting and hematemesis. Antacids may be used with early success, but strictures may form, requiring surgical correction.

In diaphragmatic hernias where the intestinal contents compress the lungs, prompt surgical correction must be carried out. These infants are in precarious condition from time of delivery until compression of the lungs is surgically corrected.

Hypertrophic pyloric stenosis may become manifest in the newborn infant, but more commonly becomes symptomatic a few weeks later. This is usually associated with intermittent vomiting, which progresses to persistent vomiting of all feedings and secondary malnutrition, weight loss, obstipation, and electrolyte imbalance. Vomitus never contains bile, and the infants are hungry and will eat again after vomiting. Peristaltic waves may be seen rolling across the abdomen from left to right, stopping at the pylorus, which may be palpated as an olive-sized mass in the right upper quadrant. X-rays here will show a dilated stomach and a thin string of opaque material going through the pylorus. This is demonstrated best by rotating the baby on the film. (Figures V and VI.) Delay in emptying time of the stomach is also present.

In England great success has been achieved with the use of prolonged treatment with antispasmodics, but where, in good surgical hands mortality is less than one percent, prompt surgical treatment consisting of a pyloric muscle splitting procedure promptly returns the baby to good health and nutrition.

Non-gastrointestinal causes of vomiting, such as central nervous system damage, infection and adreno-genital syndrome, must be considered in differential diagnosis. In central nervous system damage, a history of difficult delivery and such signs as opisthotonos, high-pitched cry and ab-

normal reflexes may be found. In infection, although occasionally silent, jaundice, lethargy, anorexia and fever may be present. Here pneumonia may be seen on the chest film, or an elevated number of white blood cells may be seen in the urine or in the cerebrospinal fluid. A



FIGURE V.

X-ray showing a stomach filled with barium with almost no emptying and a positive string sign (arrow).



FIGURE VI.

Autopsy specimen showing a stomach with pyloric stenosis filled with barium under pressure demonstrating the narrow pyloric canal and the positive string sign.

blood culture is mandatory, as is prompt therapy if infection is suspected. A clue as to the type of infection present may be obtained immediately by Gram stain either of the urine or of the cerebrospinal fluid. Adreno-genital syndrome, if accompanied by salt loss, necessitates prompt therapy. In girls there is usually enough maculinization of the genitalia for the diagnosis to be apparent. In boys, although the penis may be large, and the scrotum wrinkled and more pigmented, this may not be obvious. If salt losers, as 25 or 30 percent of these children are, they will begin to vomit and will suddenly go into peripheral collapse, appearing grey and dehydrated. This usually occurs within two weeks after birth, typically on the seventh day of life. Serum potassium is high, and may be associated with high peaked T-waves on an EKG. Serum sodium and chloride are low. If the adreno-genital syndrome with salt losing is suspected, prompt therapy is necessary. If the children have already begun to vomit, transportation to a Center as a general rule is not feasible. Normal saline should be given intravenously immediately. Desoxy corticosterone acetate (DOCA), 1 to 4 mg. should be given at once intramuscularly or intravenously, followed by daily maintenance doses of 1 to 4 mg. Hydrocortisone or cortisone, 25 to 40 mg. intramuscularly should also be given.⁶ This emergency therapy will enable these infants to survive long enough to be transported to Centers where diagnosis can be definitely established and long term therapy planned.

Hematemesis in newborns causes concern. The blood may be swallowed, maternal blood occurring during delivery, and of no consequence, or it may be a sign of gastrointestinal bleeding arising from vitamin K deficiency (hemorrhagic disease of the newborn), ulcers, or intestinal perforation. The Apt test consists of suspending enough of the vomitus, or stool in the case of melena, to get a pink solution of hemoglobin. Then one part of 10 percent sodium hydroxide is added to 5 parts of supernatant and the color change in one to two minutes is observed. If the solution turns yellow or brown, this blood is maternal in origin. If the solution remains pink, this is fetal hemoglobin and means the infant is bleeding. A control with a few drops of doctor's blood can be run at the same time for comparison.⁷ If vitamin K deficiency or hemorrhagic disease of the newborn

is suspected, 2.5 mg. of Vitamin K₁ intramuscularly or intravenously can be given and bleeding should stop within four to six hours. Rectal bleeding or true meleua must be evaluated promptly, as it definitely indicates gastrointestinal disease.

Intestinal obstruction in newborns obviously points to pathology of the gastrointestinal tract and accompanies life threatening situations. Early diagnosis and therapy in these cases is extremely necessary. Signs of intestinal obstruction may be vague early in onset in newborn infants. Vomiting almost always occurs. If the vomitus of the infant contains bile, this usually means obstruction. The rare exception is the case of sepsis with secondary ileus. Abdominal distention accompanies obstruction, but may be absent in high obstructions such as esophageal or duodenal atresia. Obstruction may occur at any point along the gastrointestinal tract, and symptoms as well as time of onset vary accordingly. Three more common causes of intestinal obstruction in the newborn are atresia and stenoses of the lower bowel—usually ileum, meconium ileus, and malrotations of various types.⁸ Duodenal atresia manifests itself early in life and is frequently associated with signs of Mongolism. Malrotation occurs following failure of rotation of the colon during intrauterine development. 55 percent of the group described by Kiesewitter and Smith were symptomatic in the newborn period. 25 percent became symptomatic within the first four weeks. Vomiting was present in 86 percent. Volvulus was present in 45 percent.⁹ These children are usually distended and x-rays show little or no gas beyond the duodeno-jejunal junction. Occasionally these patients have melena and an ill defined, soft but prominent mass, which may make differentiation from intussusception difficult. Since volvulus and compromise of the intestinal blood supply is present in almost 50 percent of these patients, surgical exploration is urgent. Intussusception, although common between 6 and 18 months of age, is rare in the newborn period. Meconium ileus is found in infants with cystic fibrosis and is due to impaction of the abnormal mucus and meconium in various parts of the small bowel, giving rise to obstruction with vomiting and distention. Hernias may become incarcerated and cause obstruction in newborn infants. Infections, including appendicitis, definitely occur in the newborn, and must be

thought of in cases of abdominal distention and ileus. Hirschsprung's Disease may be symptomatic in the newborn period, and may present with distention, vomiting and obstipation. This obstipation may be relieved by an enema or a rectal examination, or it can be followed by a course of watery diarrhea for a few days with recurrence of obstipation, abdominal distention and vomiting again. These infants must have some sort of definitive surgical approach to divert the fecal stream and they are usually in precarious electrolyte balance.¹⁰ Other causes of obstruction, such as mesenteric bands, abnormally placed vessels, mesenteric thrombosis, and extrinsic masses such as duplication of the alimentary tract, must be kept in mind. An occasional infant will present with obstipation since birth, distention, and vomiting due to a hard meconium plug. Rectal removal or saline enemas will relieve these infants and they will show no signs of cystic fibrosis or Hirschsprung's Disease. This is usually described as the "Meconium Plug Syndrome."

CHART I

Causes of Intestinal Obstruction in Newborns Adapted from: Diseases of the Newborn: Schaffer; Saunders Company, pp. 333.

I. Mechanical

A. Congenital

1. Intrinsic

- a. Atresias and stenoses
- b. Meconium ileus
- c. Hypertrophic pyloric stenosis
- d. Cysts within lumen of bowel
- e. Imperforate anus
- f. Rupture of the bowel

2. Extrinsic

- a. Malrotation
- b. Volvulus
- c. Congenital peritoneal bands
- d. Incarcerated hernias
- e. Annular pancreas
- f. Duplications

B. Acquired

1. Intussusception
2. Peritoneal adhesions
3. Mesenteric thrombosis
4. Meconium plugs
5. Paralytic ileus due to enteric infection

II. A. Functional

1. Hirschsprung's Disease

The diagnosis of intestinal obstruction may be suspected on physical examination, which may reveal a sick infant with vomiting and abdominal distention. If the obstruction is high, distention may not occur. Obstipation usually occurs, but an infant with obstruction may pass several stools, and this is no guarantee against obstruction. Peristaltic waves may be seen over the abdomen,

stopping at various points, depending upon the level of obstruction. Radiographic studies are mandatory, but as in adult with obstruction, one should proceed with caution before using barium media. Upright and recumbent roentgenograms of the abdomen are essential, and should be done first. This may be diagnostic. The roentgenogram may show free peritoneal air, as in the case of a perforated duodenal ulcer. (Figure VII.) Oc-



FIGURE VII.

Premature with perforated duodenal ulcer with free air under the diaphragm. (Round object is identification tag).



FIGURE VIII.

Infant with obstruction due to incarcerated inguinal hernia. Flat plate shows distended, gas filled loops with knuckle of bowel caught in hernial sac (arrow).

asionally it may point to the lesion exactly as in the infant showing gas filled loops of bowel, air-fluid levels, and a small pocket of trapped air in a hernia. (Figure VIII.) In upper duodenal atresia or stenosis the stomach is usually markedly distended with gas, followed by a large distended duodenum with no air below this level. Obstruction with fluid levels and air in both the large and small bowel, with no definite point of obstruction may point to Hirschsprung's Disease if infection with ileus is ruled out. (Figures IX and X.) The characteristic narrowed segment of



FIGURE IX.

Roentgenogram of abdomen showing both large and small bowel distention.

recto-sigmoid below a dilated colon may not have developed, and may be hard to demonstrate by barium enema. This would not be present in those cases of Hirschsprung's Disease where the entire colon is aganglionic. In these cases rectal biopsy showing absent ganglion cells will prove the diagnosis. Central nervous system vomiting may occasionally be associated with a picture of pseudo obstruction with air in the stomach and only a few small blobs of air elsewhere. If malrotation is suspected, a careful barium enema may demonstrate the abnormal position of the cecum.

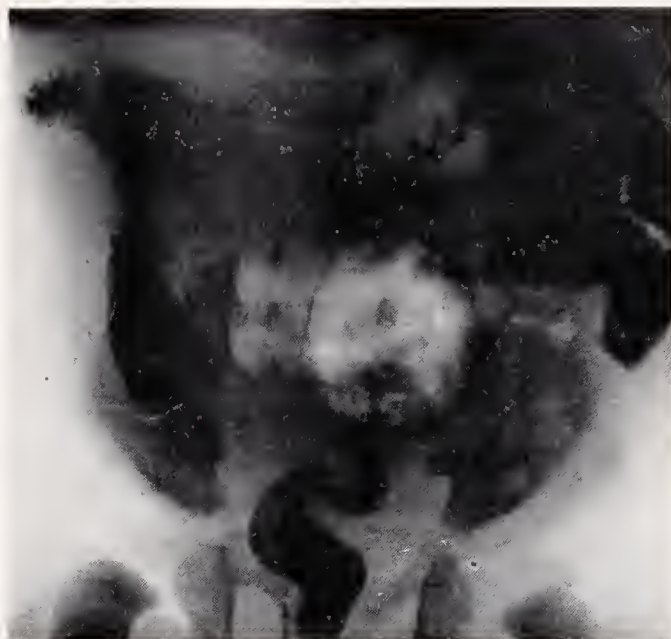


FIGURE X.

Barium enema showing characteristic rectosigmoid narrowing of Hirschsprung's Disease in same infant as in Figure IX.

If obstruction is suspected, no contrast media should be introduced from above. In infants with obstruction, prompt correction of any electrolyte imbalance and surgical exploration will more surely insure survival rather than presurgical diagnosis of the exact level of the obstruction. Under ordinary circumstances, a newborn is a good surgical risk and remains so for 48 hours after birth. Physiological alterations and diminution of his general reserve cause the mortality to rise rapidly after 72 hours.

Diarrhea in the newborn can be recognized by the character of the stools, and is more commonly due to a bowel infection, but can be seen in Hirschsprung's Disease, peritonitis, or localized infection. Culture of the stool may be positive and the infant will respond to fluid and antibiotic therapy.

Summary

Malformations and disease of the gastrointestinal tract are not too common as one considers total newborn care. The more common lesions are those associated with infection and central nervous system damage. All of these conditions are usually diagnosed by those initially caring for newborns. One may not see more than one or two newborns with gastrointestinal anomalies in his entire practice, but prompt treatment is mandatory when these conditions are seen. As a general rule, evaluation of the history, careful

physical examination, including the passage of a nasogastric tube into the stomach, and selected radiographic studies will enable one to make a tentative diagnosis and start therapy. The satisfaction of knowing that by and large these lesions are correctible and associated with a normal existence far outweighs the trouble of keeping a few diagnostic features in mind.

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PYELONEPHRITIS

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The armamentarium for treatment of urinary tract infection is seemingly great. The number of drugs with bactericidal properties against urinary tract pathogens is ever increasing and available information regarding the renal handling and urinary concentration of various drugs is plentiful, yet pyelonephritis appears to be as grave a problem as it always was. An analysis of this paradox seems to be in order since either one of the premises must be incorrect or we have failed to evaluate the fundamentals of the problem.

There is probably little reason to doubt the reported effectiveness of many of the drugs presently available and therapy based upon sensitivity of the offending microorganisms can hardly be more logical.

The other premise, basic for this discussion is that pyelonephritis is a serious and common disease constituting a health hazard of a magnitude which has remained of considerable importance despite more than a decade of active chemo- and antibiotic therapy.

That chronic pyelonephritis still is a serious problem is amply manifested by the numerous publications on the subject and only recently a monumental work on the biology of pyelonephritis was published as a result of an international symposium at the Henry Ford Hospital in 1959.

Martin¹ contends that infection of the urinary tract ranks second only to respiratory infections. He further states that infection in the urinary tract is three times as common in women as in men, but two thirds of these infections in women occur before age 40, as opposed to men where two thirds occur after age 40. Despite the high clinical incidence of infection in women it is his feeling that the disease may be comparatively more lethal in men since at necropsy it is almost equally common in the two sexes. He further

points out that fifty per cent of the patients with chronic infections are relatively asymptomatic and about ten per cent of patients with acute infection and systemic reaction lacked urinary symptoms. He reemphasizes what has been stated by many investigators,—that chronic urinary infections can be found in ten to twenty per cent of all necropsies, but less than one third of them are diagnosed antemortem. It is this author's feeling that only about seventy-five per cent of the acute infections appear to respond to initial therapy. Fifty per cent are estimated to recur, while in chronic infections only twenty-five per cent are controlled, with seventy-five per cent relapsing.

The same dim view is taken by Jackson and Griebel¹⁷ who undertook a study attempting to treat chronic pyelonephritis with a mixture of drugs. These authors again claim that the frequency of chronic pyelonephritis has not been significantly reduced and it has remained notably resistant to permanent cure. It is the feeling of these authors that treatment of chronic pyelonephritis with a mixture of drugs is unlikely to cure more patients than the use of single agents. They further state that bacteriological relapse after treatment with a combination of antibiotics was more often due to new strains or strains previously present in insignificant numbers than when a single drug was used. They found that short term treatment cured about one half of the patients with chronic pyelonephritis. It was further their observation that simultaneous administration of multiple drugs increased the incidence of adverse reactions to treatment. These authors, in a previous study analyzing 4,425 autopsy cases found the incidence of pyelonephritis to be nine per cent.¹⁸ The lesions were found to be of major pathologic importance in one third of the cases out of a group of fifty patients selected because of bacteriuria without or with symptoms. Kidney biopsies showed that seventy-five per cent had

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pyelonephritis. They found that those with acute symptoms had a good response to treatment in about seventy per cent of the cases and that permanence of cure was related to the length of time the patients were followed. Among the patients with chronic symptoms and infections, bacteriologic cures were obtained with greater difficulty in about twenty five per cent of the cases only. Their overall estimate was that consideration of pyelonephritis as a primary or secondary factor arises at about sixty per cent of patients with renal disease.

Beahler and Carrera² showed that one third of fifty-seven consecutive necropsies showed moderate to severe histologic evidence of pyelonephritis.

Smythe⁵ discusses the meaning of the suppression of bacteriuria. In his study a few patients were maintained with sterile urine for a period of six to eighteen months, however when the drug was withdrawn four to twelve weeks later the return of bacteriuria was signaled by acute symptoms of upper or lower urinary tract infection. The author states that there is symptomatic evidence of improvement by treatment in these patients. Serial biopsies were performed in these individuals and histologically no change was found in the kidney. Likewise serial function studies showed no improvements. The author admits, however, that antibacterial drugs have a place in the treatment of pyelonephritis, but expresses his doubtfulness as to whether it significantly affects the overall history of the disease in a given patient. He also states that the disappearance of organisms from the urine may represent simple suppression of bacteriologic growth and not a significant change in the urinary parenchymal flora.

The problem of pyelonephritis of pregnancy appears undisputed and it is considered the most frequent medical cause of hospitalization during pregnancy. In a study by Kite and Hunter⁹ quantitative clean voided urine cultures were obtained from 616 consecutive pregnant women. The incidence of significant bacteriuria was 44%. These investigators found that the incidence of acute pyelonephritis was ten times higher in untreated women with confirmed consistent bacteriuria than in women without initial bacteriuria.

Pinkerton and Williams⁸ studied 50 patients five years after urinary infection during pregnancy. Of these they found that 39 had suffered

from recurring urinary infections. At the time of the follow-up ten of the fifty patients were actively infected and clinical evidence suggested that five of these were suffering from early chronic pyelonephritis. Two others had undergone nephrectomy for unilateral chronic pyelonephritis. A total of 14% of patients with urinary tract infection during pregnancy showed chronic pyelonephritis five years later.

In a study of Kass¹² six to seven per cent of pregnant women were found to have bacteriuria. About one third of the treated women regained bacteriuria postpartum. It is of interest to note that the perinatal mortality in untreated bacteriuria was strikingly high when compared to nonbacteriurics or with treated bacteriurics. Analysis for prematurity showed that about one fourth of bacteriuric women delivered premature babies and that treatment markedly lowered this tendency. It was also found in his study that the blood pressure of bacteriurics beyond the age of 30 were significantly elevated over blood pressures of nonbacteriurics. The author suggests, that since bacteriuria does not have an increased prevalence in families it appears a logical hypothesis, that bacteriuria and pyelonephritis occur independently of hypertension and lead to hypertension. The author concludes with the following statement: "There is now clear evidence that bacteriuria is one of the commonest human infections, that it may be chronic and persistent, that it may influence structure and function outside of the urinary tract and that it plays an important role in disease from cradle to grave, from prematurity to hypertension and renal failure."

At the British Urological meeting in Edinburgh, 1961, a clinical pathological discussion on pyelonephritis was held and it was stated¹³ that in a study in Edinburgh significant bacteriuria was found in five to seven per cent of pregnant women. It was further stated that pyelonephritis is an unsolved problem of great importance to the community, necessitating full clinical, bacteriologic, biochemical and radiologic assessment. On the basis of their statistics it was found that increased death rate from chronic pyelonephritis has been found since 1935, despite availability of increasing numbers of antibacterial drugs.

Freedmen¹⁵ studied 52 patients in the third decade with urinary tract infection. Only one was male. Coliform bacteria comprised 83% of the

organisms recovered. Eradication of bacteria by antibiotics was achieved in only about half of the patients even though they fitted into the category of uncomplicated or nonobstructive urinary tract infection. Treatment failure was associated 42% of the time with the appearance of a new organism. The author concludes, that it is evident that present understanding of urinary tract infections does not provide many answers, instead it insists that we formulate better questions.

The correlation between chronic pyelonephritis and hypertension has been studied by Saphir and Cohen.^{3, 6} These investigators studied 35 cases with malignant hypertension syndromes. At autopsy 27 disclosed uncomplicated pyelonephritis lenta and 8 pyelonephritis lenta and glomerulo-nephritis. The authors state that the high incidence of 77% uncomplicated pyelonephritis lenta as underlying renal disease in malignant hypertension contrasts with the literature with incidences ranging from 17 to 71%. They state further that the possible discrepancies in the reported incidence of pyelonephritis as a primary renal disease are due to differences in criteria used for morphologic and sometimes clinical diagnosis of chronic or healed pyelonephritis and malignant nephrosclerosis. They base their diagnosis upon recent, similar, although perhaps not identical, morphologic pictures of experimental pyelonephritis which have been produced in rats and rabbits by different methods. The authors conclude that malignant nephrosclerosis as a pathologic entity does not exist. It is their feeling that pyelonephritis lenta, which means a slowly developing inflammation of the kidney in contrast to destructive pyelonephritis is a frequent underlying cause for malignant hypertension.

Kimmelsteil¹⁴ adopted much more rigid criteria for making the diagnosis of pyelonephritis on postmortem material. Of 3,393 cases studied, 2.8% were identified as chronic pyelonephritis. The author states that this figure is low if compared with other statistics, but it is not impossible, that lesser degrees of focal chronic pyelonephritis remain unlisted if associated with dominating renal lesions in the group of Bright's disease.

Although only a few extracts have been quoted here it appears that most everyone considers chronic pyelonephritis as a serious health hazard. There may be some variation in the evaluation of its actual death toll and as to whether or not some

improvements have been made. If improvements have been made in therapy however, they are but slight, and even though acute pyelonephritis today may be somewhat easier to handle in regard to morbidity with available antibacterial drugs, chronic pyelonephritis appears to be almost as frequent as it was in the past. We must thus conclude that the two basic premises for this discussion are both in order,—that is, that the *in vitro* bactericidal properties of the available antimicrobials are excellent and that pyelonephritis, especially chronic pyelonephritis, is as serious a health hazard as it has always been.

We might then concentrate on why this paradox exists. Katz and Bourdo¹⁰ state that the tragic cause of pyelonephritis may follow unsuccessfully or improperly treated urinary tract infection early or late in life. The principal pathway of antimicrobials through the kidney involves glomerulofiltration or tubular secretion. Such events are not conducive to high interstitial concentrations of these agents, particularly in areas of infection. These investigators further state that organisms could persist in foci within the kidney but remote from the main stream of antimicrobials agents.

Lange⁷ emphasizes that the aim of therapy is eradication of the parenchymal or tubular infiltrating infection and not only or mainly sterilization of the urine.

Holmgard, et al,¹⁶ also state that one of the many requirements for good treatment in the successful therapy of pyelonephritis is the satisfactory concentration of the free drug in the blood and tissue even when administered in moderate dosages. These authors, who have conducted an extensive study with a combination of sulfamides have, along with other investigators, failed however to measure concentration in the renal parenchyma, in particular in cortex versus medulla. They further have failed to evaluate whether concentration of antimicrobial agents is influenced by the state of diuresis. This then might be the crux of the matter and perhaps this is where we should focus our search lights in an attempt to eradicate a disease which undoubtedly, directly, as well as indirectly, contributes greatly to the health hazard of man today.

Since the available antibiotics and chemotherapeutical agents apparently are perfectly adequate as far as their bactericidal effect is concerned, it appears logical that the one possible reason for failure of these agents to eradicate pyelonephritis

and in particular to prevent its chronicity in some patients, is caused by inadequate concentration of the antimicrobial agent in the renal parenchyma.

Our knowledge of renal physiology gives us, perhaps in this respect, some clue, if not to the actual solution of the problem, at least to avenues of approach that may eventually lead to a solution. It has been well demonstrated that a considerable difference exists between the renal cortex and the renal medulla. In regard to blood flow, several independent investigators have demonstrated that the medullary blood flow is only approximately one tenth that of the cortex.

Another point of considerable interest has been clearly demonstrated from the various investigations connected with the problem of renal concentration mechanism. It has been shown that the composition of the renal medulla varies greatly with the state of diuresis, in particular in regard to urea. It is astonishing how little information, if any, is available regarding the concentration of any of the most commonly used bactericidal agents in the renal medulla and cortex, especially as it relates to the state of diuresis. As previously stated numerous investigations have been conducted pertaining to the concentration of these drugs in the urine, their renal clearance as well as blood concentration. No study, to our knowledge, however, has been done that elucidates the problem as to the concentration of any of these drugs in the renal substance, in particular medulla versus cortex and its possible relationship to the state of diuresis. This is particularly important since hydration has been a routine procedure in the management of pyelonephritis, a procedure which probably evolved from clinical experience with the highly insoluble sulfonamides first developed.

Although no objection can be raised to the treatment of lower urinary tract infection with drugs that accomplish bactericidal concentrations in the urine, such is, in itself, not sufficient when an actual renal infection has been established. Here the aim must be to achieve a bactericidal concentration in the tissues where the bacterial invasion has occurred. It appears highly indicated and urgent to determine which, if any, of the available drugs will achieve concentrations in the renal parenchyma that are bactericidal and also to have the exact information as to the possible influence of the state of hydration so that ade-

quate therapy can be instituted under the best physiological conditions.

It has been amply demonstrated that any degree of obstructive uropathy must be relieved before a successful attempt at eradication of renal infection can even be considered. Such obstruction may not only be in the drainage system but might also involve edema of the nephrons with obstruction in the individual units of the kidney. It is conceivable that obstructions of this nature can at times be overcome by increased urine flow. It is, however, important to realize that forced hydration with water and an inadequate intake of solute may not result in a correspondingly high urine volume inasmuch as antidiuresis may be present resulting from any number of circumstances. Various major and minor factors such as apprehension, fear, pain, etc., may lead to antidiuresis, which is more or less obligatory, meaning that it can not be reversed by forced intake of water. The onset of antidiuresis as well as the duration of same is dependent upon various factors of a vaguely definable nature. In short, it is rather difficult, if not impossible, to predict which patient may have antidiuresis and respond to a water load by retention of fluids rather than a quantitative return through the urine. The administration of a high fluid volume containing excretable solutes will, however, in the face of otherwise normal kidney function, invariably result in a quantitative return, achieving the desired improvement of drainage.

The two most commonly used solutes to promote an osmotic diuresis are Mannitol and urea. In comparing the two the possible role of urea as a bactericidal agent should perhaps not be forgotten. The presence of urea in concentrations found in concentrated urine, *in vitro* has been shown to be bactericidal to the most common gram negative pathogens in the urine. What is perhaps more important is that the concentration of urea during conditions of antidiuresis is not only high in the urine, but also in the renal medulla. Since this portion of the kidney has the least amount of blood supply and also is the most susceptible to an infection it is conceivable that this alone or in conjunction with a proper bactericidal drug may be the most physiological approach to the treatment of pyelonephritis.

It has been postulated that urease as found in certain urea splitting bacteria is responsible for certain features of the pathogenicity of some renal

infections.²⁶ In these studies it appeared that increasing urea concentrations were, in the presence of *Proteus*, progressively deleterious to the renal parenchyma in an almost linear fashion. Increased alkalinity and increasing entrance of bacteria into the cells seemed to account for the phenomenon. Since this appeared to be somewhat in disagreement with the suggested bactericidal mechanism of urea it is probably appropriate to point out that the studies in question were conducted using urea concentrations increasing up to two to three hundred milligrams per cent. The investigators further showed that around a concentration of 200 mgms % of urea a plateau was reached, and that further increase in concentration to 300 mgms % resulted in a reduction rather than an increase in intracellular infection. The concentration of 200 mgms % of urea is one which is present in the renal medulla during water diuresis and not during antidiuresis and does not constitute a high urea concentration, since the concentration here can go as high as 4,000 mgm %. It is consequently unlikely that these results, interesting as they are, have any bearing upon the conditions during antidiuresis where the urea concentration is ten times as high as the highest urea concentrations described in the studies mentioned.

We have on several occasions demonstrated the usefulness of a urea induced diuresis in the treatment of acute pyelonephritis. The administration of 120 gms of urea in three liters of 5% dextrose in water daily for three days has, in many cases, produced a rather prompt drop in fever and resulted in microscopically negative urine. In some cases the organism causing the pyelonephritis was resistant to all known antibiotics. We are by no means advocating this as the sole treatment of pyelonephritis but merely attempting to rationalize the approach to the treatment, where rationalization has so long been completely lacking.

As previously mentioned, one of the most pertinent studies that appears to be highly overdue is to access the concentrations of the available drugs in the different zones of the kidneys under various states of diuresis. Some preliminary studies of this nature have been conducted in our laboratories on rats with several types of sulfonamides and a few other drugs.²⁷ These results are still too preliminary for any conclusive reports. However, it should be mentioned that some of the

most commonly used sulfonamides do not concentrate in either the renal medulla or the renal cortex. Their concentration in the medulla varies to some extent depending upon the state of hydration. However, this variation appears to be solely a result of the urinary rather than the tissue concentration.

We have so far evaluated Madribon,^a Gantrisin,^b Nuprin^c and Sulfamethizol.^{d 28}

Table I shows the renal cortical and medullary concentrations of the various drugs and the simultaneous blood concentration during antidiuresis, in the rat. During water diuresis, medullary concentrations are even lower. Only Sulfamethizol has a medullary and cortical concentration exceeding that of the blood.

It is, however, important to point out that these analytical results are obtained by analyzing renal tissue, which undoubtedly includes also tubular urine. Consequently the analytical result is representative of the sulfa drug concentration in parenchyma, blood and tubular urine of the particular zones of the kidney from which it is obtained. For comparison we have analyzed for radio-hippuran and urea and it appears that a three to four fold concentration over serum in the renal medulla of radio-hippuran during antidiuresis can result from a high concentration of the material in tubular urine with a parenchymal concentration equal or below blood. Thus it seems that although Sulfamethizol is maintaining a higher concentration in the renal cortex and medulla than any of the other three sulfonamides mentioned, the tissue concentration may not exceed blood concentration regardless of the state of diuresis. The tissue concentrations of Gantrisin, Madribon and Nuprin on the other hand can be no more than an insignificant fraction of blood concentration.

We have studied one new antimicrobial drug^e which concentrates eight fold in the renal cortex over the serum. This is difficult to explain in other ways than particular tissue preference and concentration of the drug.

As stated initially it is not as yet our intention to make any conclusions regarding advantages or disadvantages of special antimicrobial agents, but rather to attempt to point out the possibilities that may be available to us in exploring these problems and evaluating some of the necessary physiological mechanisms basic for determining whether an adequate clinical trial is warranted.

Although the outlook presented in this discussion perhaps is rather dismal it nevertheless appears, that new horizons in the approach to the treatment of pyelonephritis may be in store. Presently it also appears, that prevention of pyelonephritis by adequate perhaps even long term antimicrobial therapy is in order. It is questionable whether forced hydration to excess is beneficial, in fact it may be deleterious, and should probably be re-evaluated completely.

It is about time, that the various Pharmaceutical Houses, manufacturing antimicrobials for the treatment of renal infections, take some active interest in evaluating actual drug concentrations at the site where it is needed. Such includes, out of necessity, evaluation of the significance of the state of diuresis. For years we have been supplied with numerous figures regarding clearances, urine and blood concentrations of various urinary antiseptics, figures which in themselves are meaningless for the point in question, that is, treatment of pyelonephritis.

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- C. 2, (p-amino benzene sulfonamide) 4, 5 dimethyl-oxazole manufactured by Upjohn Laboratories.
- D. N¹ (-5-Methyl 1, 3, 4 thiadiazol-2-yl) sulfanilamide manufactured by Ayerst Laboratories.
- E. 1-ethyl-7-methyl-1, 8 naphthyridin 4-one 3-carboxylic acid (Win)

THE NURSE AND THE PUBLIC

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A FEELING OF CONFIDENCE and smugness soon left me when our medical librarian brought me a staggering arm-load of literature concerning the innocuous subject, "The Nurse and the Public." The more I read, the more confused I became, and understanding dawned only when I realized that, for our purposes, the word "nurse" may refer to an individual registered nurse or in the collective sense to the nursing profession. Likewise, the word "public" may refer to one John Doe or to all John Does, as a group.

We all know that the public is a heterogeneous mass of which we are all a part. It is this public that buys what we have to sell; and, in spite of economics, governmental controls—either national or local—or barrages of propaganda, the public will buy only that which it thinks it needs, can understand, can afford, and which will be of service by virtue of good quality. We know that this public reflects the emotional, economic, and social stresses of the majority of its individual components—that is the philosophy of Democracy. Our public demands of its components an aggressive, competitive spirit or success will not be allowed.

Yes, we know a lot about the *public* because you and I help make up the total group. It is my conviction and fear that the total group knows very little about the nursing profession, and, furthermore, I'm not at all sure that the public wants to know a great deal more. I'd wager my bottom dollar that a survey, right now, down on Main street, covering the first hundred persons who came by, would reveal a prompt, frank, sincere fundamental answer to the simple question, "what do you want from the nursing profession?" That answer would be, "when I'm sick, I want a competent nurse to look after *me* and help *me* get well." Such an attitude seems to connote maximum interest during a period of crisis. In the individual's mind, a nurse is indispensable at periods of birth, pain, and death.

Dorothy Johnson, in a recent issue of "The American Journal of Nursing," states, "the original view of nursing as a direct and individualized service, concerned with the comfort and personal needs of the patient, has been blurred in recent years. Physicians, pressed by their own advances in knowledge and technology, have asked more and more of professional nurses as their traditional assistants to further the cause of better medical care. Administrators of hospitals and other health agencies, pressed by the explosive growth of these large and complex organizations, also have asked more and more assistance from the professional nurse in the *business* management of their institutions.

"Such changes have made it increasingly difficult for the professional nurse to maintain the intimate, frequent, and prolonged contact with patients that is necessary for personal care. Further, the forces creating these changes have been so strong that professional nurses have been slow to question their effect or to speculate about the significance of the direct and personal service which is being sacrificed."

Edward L. Bernays reports in his article, "America Looks At Nursing," that studies indicate "(1) that the 'public' thinks that there should be three categories of nurses—professional nurses, nurses' aides, and practical nurses; (2) that nurses should be more sympathetic, less indifferent to their patients, though on the whole they think the attitude of nurses commendable; (3) that all nurses should be public health and community minded; (4) that prepayment plans should include nursing service to all economic levels in order to insure more and better nursing and also provide the nurse with a steady and adequate income."

I do not believe that very many people know of the existence of, or are particularly interested in, nurse consultants, administrators, educators, supervisors, authors, personnel nurses, or industrial nurses. Of course, you and I know the im-

portant roles played by those outstanding people; we know of the noble contributions for the betterment of human welfare; we know of the years of study and training, and we know of the dedication and devotion to duty by these representatives of the nursing profession.

No doubt the public needs a better understanding, but what I am trying to recognize and establish is some basic relationship that *now* exists between the nurse and the public. The relationship of *personal* service filling a *personal* need is fundamental in the thinking of our public. It is *in this* relationship that the nursing profession was born and has grown to respected maturity. It is the combination of the nurse's desire to *serve* and the *need* created by dependency and regression, within the patient, that perpetuates the contribution of the nurse. Whatever is her status in her profession, she should keep this basic concept foremost in her thoughts and *tell* her public that she is thinking such thoughts. And, remember, this requirement of personal service extends to the visiting nurses who care for sick persons in their homes, to school nurses who work with youngsters in the school situation, and to nurses in industrial plants.

Let us not think for one moment that the concepts and precepts as enunciated by Florence Nightingale are hackneyed and passé. Our public cherishes these ideals and will get them from some source if the professional nurse fails to provide fulfillment.

Yet, in paradoxical fashion, this fickle public, by its demands, requires the nursing profession to *dilute* its personal service to satisfy the needs created by increased interest in public welfare. The establishment of public clinics, the demand for more educational preparation, the closer relationship of labor and management, the continued maintenance of a large military establishment, the concept of preventive medicine; yes, many are the demands of the public upon our nursing profession which tend to make *less* available that basic personal service which each individual wants. We Americans like to eat our cake and have it, too.

Dr. Esther Lucille Brown, in discussing the needs of society, has paid tribute to the accomplishments of nurses in the past, but has also pointed out that in the future we must meet the needs of society in a more comprehensive fashion. She asks, "how is the profession to know what

these needs of society are? To be fully aware of these is a responsibility of planners, not planners of your elective choice to do a job for you, but you individually and collectively are inescapably responsible. The needs of society are evident all around us in our everyday living, if we will but notice them."

Dr. Brown recently said this to me: "Let me tell you a little story that I heard last summer in Switzerland that I am sure could be duplicated in the United States and very probably in the state of Arkansas. A school of nursing in Geneva wanted to provide its students with a learning experience in working with normal families in the home situation. Arrangements were finally made for these students, under the supervision of public health nurses, to provide various services such as home nursing and advice concerning the feeding and care of babies and young children, to the families who were moving into a new public housing development. The families expressed a complete lack of interest, if not open resentment initially. They thought that 'nosey' persons were going to interfere with their personal lives. There had been nothing like this before and they certainly didn't want it.

"As a matter of fact, these families began to discover that the students and their supervisors could be of immeasurable help and psychological comfort. Never before had there been persons to whom they could address all sorts of questions or get advice about seeing a doctor. I think that the relationship with these families was truly direct. At present they are inquiring why they can not have a great deal more of this kind of invaluable help. Such service can be as direct as that offered in the hospital—sometimes more direct because there is less organizational structure that gets in the way."

Let us consider, for a moment, the matter of public relations in the nursing profession. The American Nurses' Association and the National League for Nursing are the top organizations and therein lies the responsibility for systematized public relations. It seems to me these organizations have been preoccupied with the development of educational standards rather than service standards. No doubt this process is best for the public interest in the opinion of the nursing profession leadership; however, the *bulk* of nurses are in the general duty category, which deals more directly with the public, and about which the

public is the least informed. The right of the public to be told about nursing with its problems, needs, and available services, is based on these facts. The public is the purchaser of nursing service; it supports nursing education, and from the public comes the supply of nurses. Furthermore, the public consists of potential patients, and it should know the types of nursing care available and how to get that care at the most reasonable cost. The public's stake in nursing can not be overlooked since its welfare is affected by the quality and quantity of nursing service rendered.

A prominent newspaper and public relations man recently gave me these answers to my question: "What does the public want from nurses?"

"(1) That they continue to look like they do now—fresh, pretty, at the same time businesslike—in white starch uniforms, with their hair nicely groomed. Don't let anybody put them in pastel-colored clothing, silky or crinkly, or nylon or dacron.

(2) That they preserve and treasure the stereotype of Florence Nightingale.

(3) That they lend their weight to some practical, sensible changes (as they have been doing), whereby non-professional tasks may be turned over to people like nurses' aides or nursing assistants.

(4) That they share with the public the public relations task of selling the nursing profession to the rising generation and their parents (since the latter possess the power of veto of a young person's plan to enter a profession that requires so much training as does nursing)".

Thus far I seem to have stressed what the *public* wants and expects from the nurse. I am not unmindful of the fact that a nurse is an individual with sincere feelings, desires, motivations, aptitudes, and ambitions. Through his or her own choice, a service career has been selected. To place a price on service is most difficult. To try to force service leads to chaos. No one wants either of these two mechanisms. The nurse expects from the public economic stability commensurate with the intelligent service she has to offer. I have yet to meet a nurse who got rich practicing her profession—nor have I met one whose practice, in itself, created serious unhappiness.

A nurse, as anyone else, wants the approbation and respect of society. In this regard the nursing

profession can feel secure in the knowledge that our public has confidence and a sense of well-being. It might be true that the glamorous build-up of the nurse during the war years has created a symbol that no one could emulate; however, any grumbling that I have heard or read about has been due to a critical shortage of the wonderful service that nurses provide.

Not long ago, I asked a highly respected nurse on our staff this question: "What do nurses want from the public?" Her answer was as follows:

"(1) For the public to become acquainted with their state laws concerning nurse practice.

(2) For the public to be aware of the difference between registered nurses, practical nurses, and those who, without any preparation, practice nursing; so the public can know what they are getting when they purchase nursing service." She further remarked, "the points mentioned strike me as most important; however, I feel it is up to the nurses, through their professional organizations, to educate the public by periodically presenting *enlightening* information as to what nursing really is, and what the public can expect from various levels in the field of nursing".

I am not qualified to enter into a hassle about the right to practice nursing, but I do feel that this nurse missed a most important aspect in her suggested answers. In effect she said, "let our national organizations carry the ball for us." The concept overlooks the fact that nurses, as individuals, are on the team. In their everyday contacts, with a concerted, logical, rational, and truthful approach, you can spread more meaningful understanding than any national selling campaign.

Another nurse in our community made this answer to my query, "what do nurses want from the public?" "I believe that all our wishes could be summed up in the following sentences—nurses want the privilege of using their knowledge, skills, and abilities—which the public demands—so that, at the end of each day we have a feeling of accomplishment, satisfaction, and of personal worth. We do not go through this world but once and without these feelings, fully or in part, there will be no sense of calmness and peace in our hearts, without which *work* has little real meaning."

For a different twist, I asked the editor of a prominent newspaper what he thinks nurses want

in their relationships with the public. He says that:

"(1) Nurses want the public to keep that halo around their heads.

(2) They want the public to understand the changes that have taken place in pre-hospital, hospital, and post-hospital treatment since momma had her last baby or papa his hernia.

(3) That the public have some knowledge of their practical problems—especially that nurses still have a lot of work to do for patients, that has to be done right on the dot.

(4) Nurses want the public to see that proper training schools are kept in operation and have the money to keep going—and that scholarships and other help are provided for needy girls to get a nursing education.

(5) Nurses want the public to value the nursing profession so that a decent proportion of folks will encourage daughter Susy to go into it.

(6) The profession wants the public to be willing to pay reasonable fees for their nursing service, and

(7) Nurses want people to understand the profession generally—they want all 'round good public relations . . . to keep on making more friends all the time."

I now invite your attention to a major medical problem which is intimately related to our subject, "The Nurse and the Public." Dr. Edward L. Bortz recently defined this problem: "For a good many years I have been interested in problems of aging, the changes in man which appear with the passage of time. Medicine must be concerned with the deep dissatisfactions of our aging citizens; if, for no other reason, because of the spectacular increase in numbers. It is becoming evident that the health, medical, and welfare problems of our senior citizens are the number one challenge to our nation today."

As a member of the medical team, are nurses, as an individual and a group, sufficiently well informed and motivated to meet this public and personal problem? Perhaps we have shied away from caring for old people—society certainly has not been kind in this regard. It is my feeling that nurses, as guardians of our public health and welfare, must face the problem of nursing the aged. Nurses must be aware of new developments in medicine which help explain the aging process and they must understand the basic emotional

reactions associated with lonesomeness, feelings of rejection, and the awesome feeling of worthlessness. This is an important part of the "nurse and the public" in action.

About this point, our own Dr. Brown goes a little further when she says: "personally, I would wish very much that both the medical and the nursing profession might plan services more largely in terms of a life *continuum*. We have emphasized the early years; more recently we have emphasized the diseases of middle life; we are now beginning to emphasize the diseases of old age. Probably we haven't yet done enough thinking about human beings and their needs throughout a total life span."

Another major problem is present in this nurse and public relationship. Within the past twenty years, right before our eyes, there has developed the awesome fact of nuclear warfare. The potential destruction and disruption of the world, as we know it, virtually defies human comprehension. Such thoughts seem almost inadmissible to our minds, yet you and I know of Hiroshima and Nagisake. Should such a war materialize, the very *survival* of our country would, for a time, be in the hands of those with nursing and medical knowledge.

I feel that an important responsibility rests upon the nurses' shoulders in regard to civil defense and disaster planning. Each nurse should become a member of a disaster team; should attend community meetings, and give of her knowledge when civil defense or disaster planning is a subject of discussion. The public expects a nurse to know:

- (1) The need for Civil Defense.
- (2) What to do if natural disaster strikes.
- (3) The effects of wartime destruction.
- (4) Local civil defense plans.
- (5) Warning signals for your community.
- (6) The facts about radioactive fallout.
- (7) How to prepare homes to cope with the effects of enemy attack.

These activities will not take much time and they might be life-saving because of organized readiness.

A few years ago an editorial concerning National Nurse Week contained the following paragraph which I think establishes a sound finis for my discussion: "The nurse is a worker trained in the techniques or restoring and maintaining physical well-being . . . of sanitation, nutrition,

psychology, and a whole battery of modern medical routines, as well as bedside care. She is an essential element in any program fostering the health and physical welfare of the American people.

"Let us consider the nurse, then, not as the cardboard figure of recruiting posters, but as one of us who is trained to work for health in our community. Let us remember the nurses' daily contributions to the health and welfare of our own families and the families of our neighbors. Let us join with them to renew and extend the ranks of nursing through bringing more young

people into their profession, to support both the aims and the costs of nursing services and nursing education in our own community, to make good nursing care available to all of the people all of the time."

"The nurse and the public"—A relationship that is as complicated as life itself, a system that is as strong or as frail as human personalities, a two-way thoroughfare leading to a stronger and happier America, a method of exchange of devoted service for appreciation and affection—a way to carry out God's will.

WHAT'S NEW?



PEDIATRICS

Barney P. Briggs, M.D.*

RESEARCH IN ALL FIELDS of medicine continues at a rapid pace. This is certainly true in pediatrics. Perhaps the greatest efforts are now directed toward viral studies. The greatest emphasis at the moment is concentrated on the oral polio vaccine. This problem and all the recent developments is well known to each of us. While emphasis is concentrated on these studies, it might be well to review a few developments in a well known, but often missed diagnosis, of cystic fibrosis of the pancreas or CF.

Cystic fibrosis has only been known as a clinical entity for the past nineteen or twenty years. The exact cause has never been determined but it is known genetically to occur once in about each two hundred newborns. This is quite a high incidence.

It is thought that cystic fibrosis is a disease primarily of mucus glands. These occur throughout much of the body and therefore give a variety of symptoms. These symptoms are chiefly related to the pulmonary and digestive systems. Cough is a very prominent symptom and all babies who develop a persistent cough, with or without digestive disturbances, should have this disease entity considered in the diagnosis. It is most imperative to make an early diagnosis, for by so doing, prevention of irreversible lung damage is possible. Diarrhea is the other most common complaint. This type of diarrhea is usually unaffected by the usual type of therapy for diarrhea. The stools are usually foul smelling, bulky and contain excess fat. Any infant who has this type

of stool, with or without cough, should be investigated for CF. A third syndrome that should lead us to consider this disorder is meconium ileus. In this entity newborn infants have symptoms of intestinal obstruction. These are vomiting, abdominal distention and the presence of inspissated meconium stools. Once such a meconium stool occurs we should be alerted to such a possibility existing. If no stools occur, an enema may be productive of stringy, dry meconium.

In the diagnosis of CF is most easily made by analysis of sweat for chloride. A simple plate test may be used for screening these children and such a test can easily be performed as an office procedure. In doubtful plate tests the child should have a sweat test performed. Sweat chloride content above 90 milliequivalent is diagnostic of CF.

Treatment early of CF has increased the life span of infants from months to years. Indeed one investigator has reported an adult, 31 years of age with CF. Treatment is directed primarily to the two systems previously described. For the digestive system enzymes are given before each meal—and occasionally between intermediate feedings. The present regime is to add pancreatic granules, Viokase (R) or Cotazyme (R). These are all digestive aids and are especially useful in the digestion of fats. One school of thought believes the infants do better on low fat diets, whereas, the other school of thought prescribes only a regular diet. The author feels, from his experience, that the babies do better on a low fat diet with added enzymes as mentioned above

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especially in infancy. As a child grows older, generally they tolerate a regular diet much better. Because intestinal absorption may be less efficient, vitamins are usually prescribed in larger amounts than normally used. The treatment of respiratory symptoms is extremely important because prevention of pulmonary damage will prolong the life span immensely. One must choose drugs judiciously in the therapy of pulmonary complications and yet treat heroically. Serial sputum cultures and sensitivity studies must be made inasmuch as the bacterial flora changes. By these means a more direct and therapeutic regime may be maintained. Perhaps in no other disease entity are antibiotics used so extensively. It is extremely important to check these children frequently and thoroughly. An upper respiratory infection may readily be complicated by pneumonia, so much so that all parents of children with cystic fibrosis should be warned to seek medical help early in the common cold. These children often do poorly in hot weather due to the loss of sodium and chlorides and extra salt should be provided in their diet during the warmer seasons.

The parents of children with CF have joined together in an Association of Cystic Fibrosis. There is a local chapter in Arkansas. We feel that all parents of children with this disease should be urged to join. The most important

reason for joining this organization is so that the parents can discuss their mutual problems together. Also, the parents have been invaluable in helping to raise money to carry on more extensive research in this disease. Another reason for encouraging the parents to join this organization is that they may purchase medications at near cost through the organization. Likewise, inhalation therapy equipment and oxygen may be purchased for those children with more extensive damage who need this type of treatment. For these reasons and for others all such parents should be urged to join.

Recently the Pediatric Department at the University of Arkansas Medical Center has obtained a grant for research in this serious illness. The department welcomes referrals of children with CF and will aid the referring physician in every possible way both in recommendations for, and aiding in, treatment.

We are very fortunate to have this program under way here and it is hoped that something will be discovered in this institution to be of help to these unfortunate children.

Finally, everything possible should be done to protect these children against illnesses. Avoiding crowds, the usual immunizations and above all, giving vaccines such as are now or soon will be available against influenza, adenovirus and measles.

TEACHING SEMINAR

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HYPOTONIA UNIVERSALIS INFANTALIS: THE FLOPPY INFANT

David W. Sinton, M.D.

*Associate Professor and Chief
Division of Neurology*

THE PHYSICIAN OR PEDIATRICIAN has often called you to evaluate the infant who fails to thrive and exhibits a universal or generalized hypotonia. Such babies are easily recognized. They have a poor cry, are difficult to feed, fail to gain and present the appearance of a rag doll. If they are raised beneath the arms, the scapular and shoulders muscles are unable to maintain tension and they fall through the arms like a "slippery sausage." When supported beneath the back, the head and feet fall toward the ground in an inverted "U" pattern.

Such infants present very profound and difficult diagnostic problems. Classically there have been two major divisions of hypotonia: Oppenheim's and Werdnig-Hoffmann's disease. Modern neurological concepts differ distinctly and several other possibilities must be considered. Oppenheim's disease or amyotonia congenita was originally described without definite pathological correlation.¹ Nevertheless, the original description is valid. There are a group of children who develop symmetrical hypotonia early, i.e. within the first or second month of life, have depressed tendon reflexes and show a gradual improvement or at least a plateau of development.

Werdnig-Hoffmann's disease or infantile spinal muscular atrophy, on the other hand, was a distinct clinical and pathological entity. This condition was thought to develop later in infancy,

i.e. six to twelve months of age or later; to be associated with a definite hereditary pattern and a distinct pathological picture. Several families known to the author have presented the usual picture. There is a symmetrical progressive loss of muscle power and strength, muscle atrophy, diminished or absent tendon reflexes, and finally death due to respiratory paralysis, often between ages four to ten years. The usual picture was reduplicated in siblings without a definite sexual linkage, but with a distinct familial pattern.

I have had the opportunity to examine pathologically several infants who developed hypotonia, i.e. amyotonia congenita, early in infancy. These children died before reaching the age of six months. They had developed signs and symptoms early, i.e. almost from the moment of birth. In one instance, the mother could recall poor or inadequate fetal movements. Thus the diagnosis of amyotonia congenita was suggested by the pediatrician and strongly supported by the consulting neurologist.

Pathological examination in these cases has revealed an irregular pattern of muscular atrophy in bundles and groups, reminiscent of spinal muscular atrophy of adults (amyotrophic lateral sclerosis). (Figure 1.) Examination of the spinal cord has shown a diminution in the number of anterior horn cells (large spinal motor neurons). (Figures 2, 3.) Thus, these children conform to

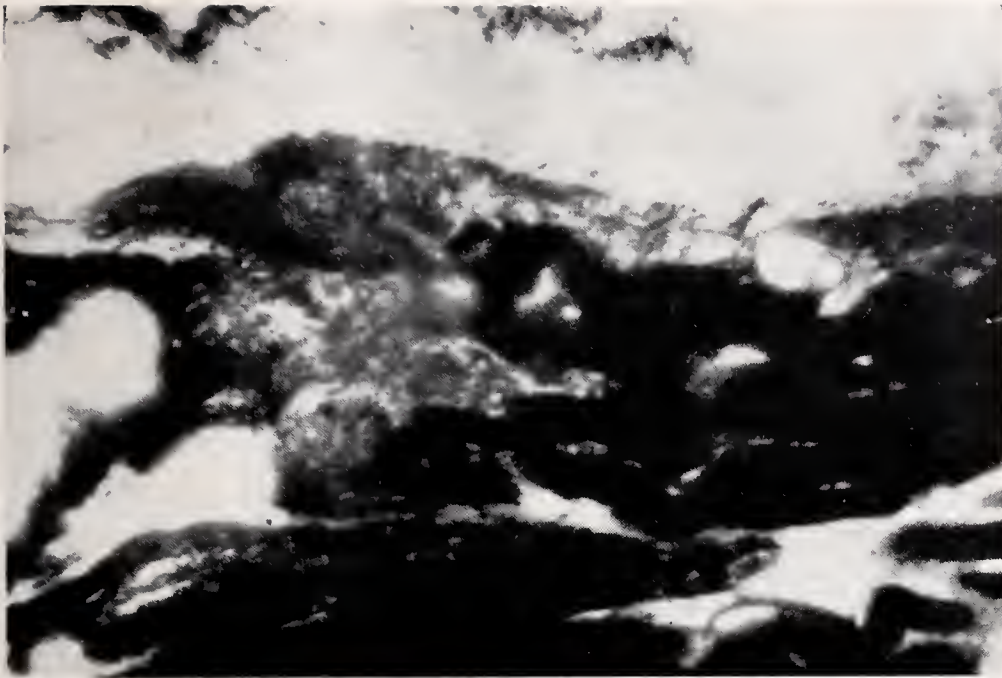


Fig. 1.

Low power reproduction from a colored microphotograph of the muscle in a case of "Amyotonia Congenita." Note the large dense (normal) muscle fibers in the lower right hand. Above and to the left, there is a bundle of barely discernible small fibers. Mason Trichrome Stain.

the picture of spinal muscular atrophy and do not differ from Werdnig-Hoffman's disease except in two particulars: 1) absence of family history; 2) early onset, perhaps in-utero. The author is convinced that a very large group of hypotonic, or floppy infants, suffer from a form of motor neurone disease with the time of onset varying from uterine to late within the first or early in the second year of life.

There remains a definite group of infants who develop hypotonia late, i.e. within the first year of life. Several possibilities can be recognized. However, most of these children must be observed for several months of development before a defi-

nite diagnosis can be established. The possibilities include 1) atonic diplegia, 2) polyneuropathy, 3) infantile poliomyelitis, 4) muscular dystrophy, 5) cerebral lipoid storage disease, 6) benign congenital hypotonia.

In the first group (atonic diplegia) the child will show retarded motor development and hypotonia. The lesion, however, lies within the CNS and will eventually be associated with the development of upper motor neuron signs, i.e. extensor plantar (Babinski) signs and hyperreflexia. The child may show some gradual improvement, but eventually may develop other distinct signs of central nervous system involvement such as se-

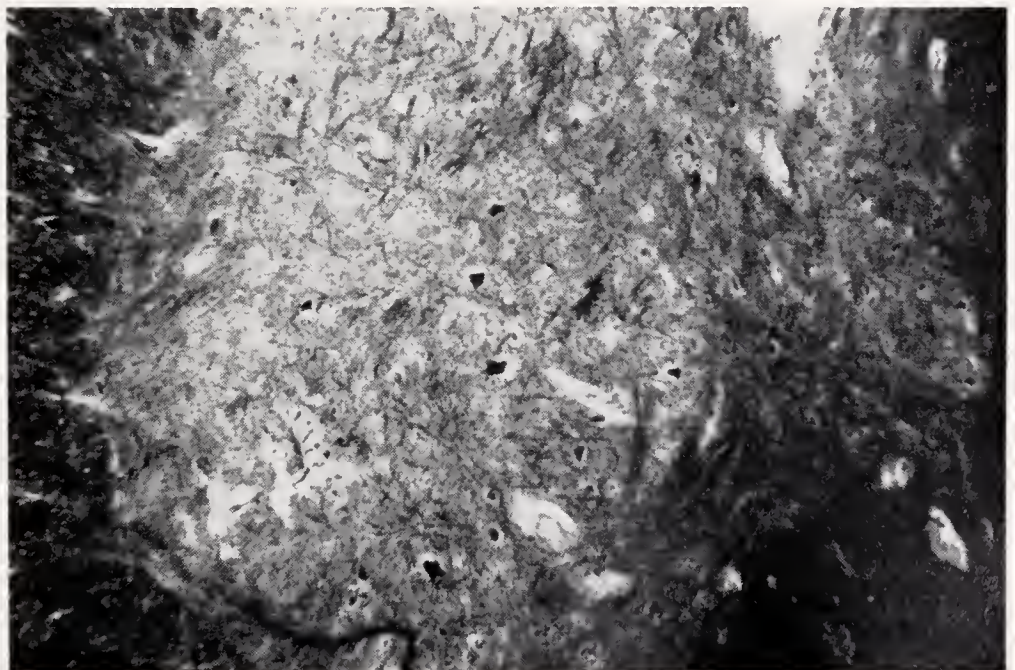


Fig. 2.

Low power microphotograph of the anterior horn of spinal cord from the same case. Note the paucity of large motor neurones. Nissl and Myelin Stain.

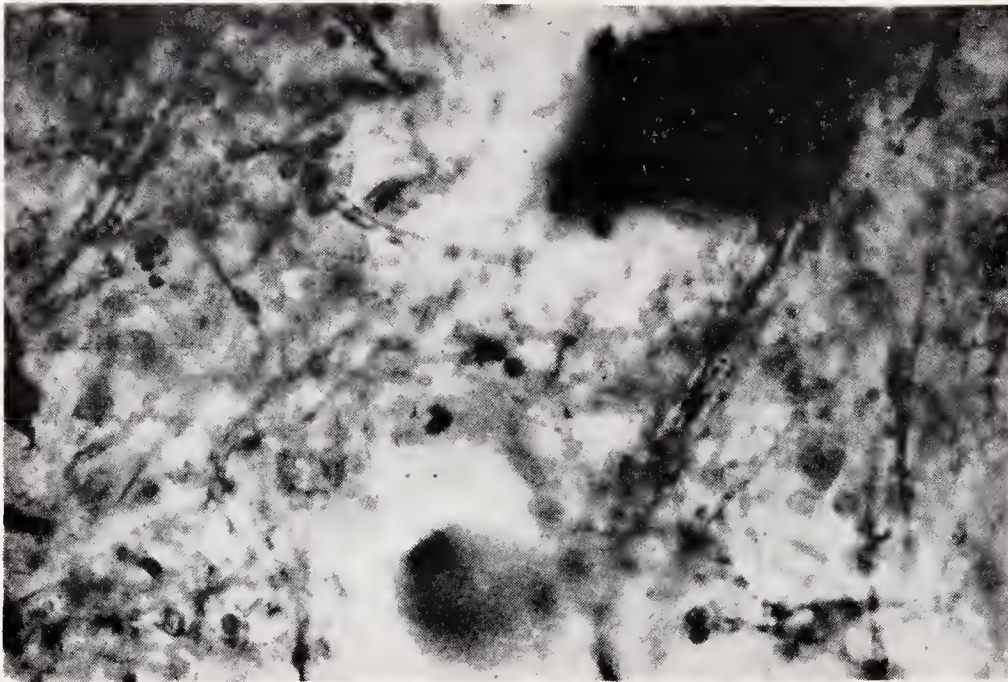


Fig. 3.

High power microphotography of the same area as Fig. No. 2. An intact motor neurone is present in the upper portion of the field; an altered neurone in the lower field. Several myelin figures are also present. Nissl and Myelin Stain.

vere motor retardation or seizures. Prognosis in this group is excellent for life and fair for improvement. A mild spastic diplegia may eventually develop.

Polyneuropathy in infancy is difficult to diagnose. The child may be irritable or "fussy." There may be definite history of difficulty in feeding or special restrictions in the diet. Often prolonged diarrhea may precede the development of signs and symptoms. Usually the condition develops after the fourth or fifth month. A flaccid peripheral paralysis with absent tendon jerks is characteristic, often with hyperesthesia of skin and muscles. Vitamin supplements in large doses may reverse the process and enable a definite diagnosis to be made in retrospect. Electromyography studies may show signs of neuronal regeneration as the disease gradually recedes. A simple rule-of-thumb would dictate the use of vitamin therapy and careful dietary management in a doubtful case. Careful follow-up observation is important.

Infantile poliomyelitis is fairly rare because of the protection obtained from maternal factors. Nevertheless, an occasional case is seen within the first year of life. The illness begins abruptly and is associated with a cellular and protein reaction in the spinal fluid. Characteristically, poliomyelitis results in an asymmetrical muscular atrophy, flaccid paralysis and absent tendon reflexes. The tendency is toward improvement over a period of months and even years.

Infantile muscular dystrophy is a rare disease.

Of the conditions so far considered, this is the first to be distinctly localized within the muscle cell. The process may develop very gradually so that motor development may progress normally, obscuring the true nature of the gradually progressive disease process. A family history is very helpful in evaluating this process, and muscle biopsy at 6-12 months of life may show a distinct dystrophic pattern of muscle development, i.e. irregular hypertrophy and atrophy of fibers with proliferation of and central migration of sarcolemmal nuclei. Electromyographic studies may also be helpful, but must be done by those who are thoroughly familiar with normal infantile muscle patterns. A special form of muscular dystrophy has been described by Shy.² In this disease, a life long pattern of inadequate muscle strength and development can be found in relatives of the patient. The disease is present very early in life and progresses very slowly or may be arrested after several years. A peculiar feature of this disease is the demonstration of unusual "central core" formations in muscle fibers by special stains.

Cerebral lipoid storage diseases such as Tay-Sachs and Neimann-Picks diseases may involve the large motor nuclei of the cranial nerves and the motor neurones of the cervical enlargement. When this occurs, a motor paralysis with atrophy (lower motor neurone type) may result. The child presents a definitely progressive illness; usually death occurs within the second or third year of life. The observation of a cherry red macular (Tay-Sachs) or hepatosplenomegaly

(Neimann-Picks) will materially help in identifying the process. A distinct genetic background (Jewish extraction) may give a clue to the correct diagnosis (Tay-Sachs).

Finally, occasional children with "benign congenital hypotonia" are seen. These children are hypotonic at birth or shortly thereafter, but eventually develop normally and show no residual effects. The exact nature of this process is poorly understood.

In considering the hypotonic infant, one must be prepared to carry out a prolonged observa-

tion. Careful history taking with emphasis on family history in all branches is a must. Muscle biopsy, electromyography, and, in occasional cases, spinal puncture are helpful adjuncts in diagnosis. Prognosis must be guarded until adequate evaluation has been carried out for several months.

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ELECTROCARDIOGRAM

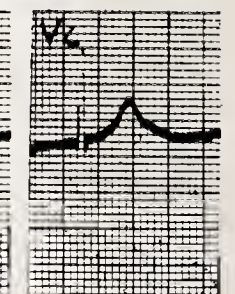
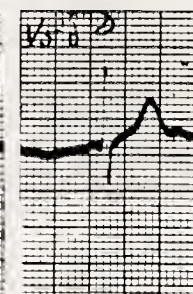
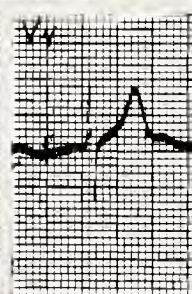
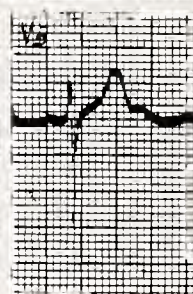
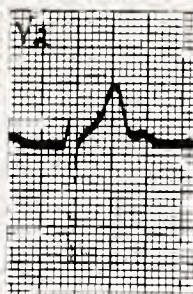
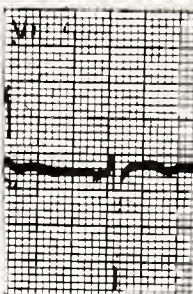
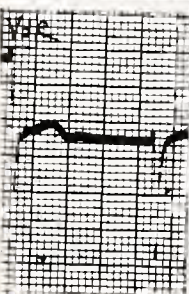
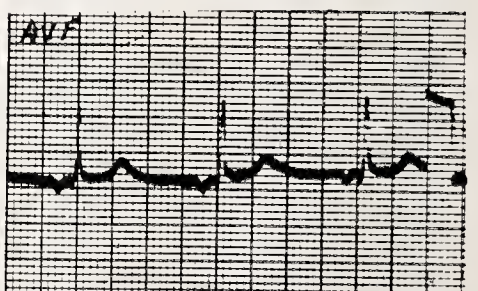
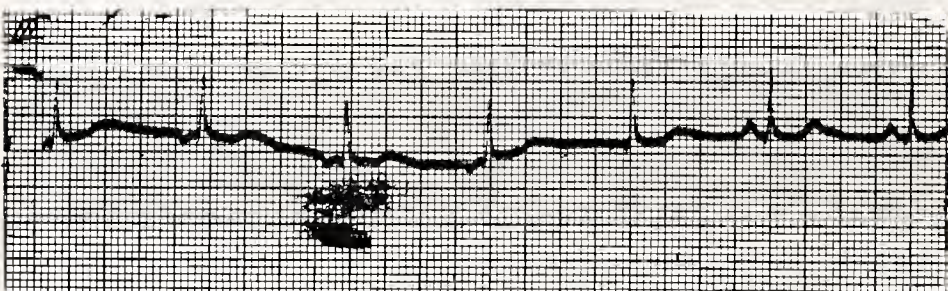
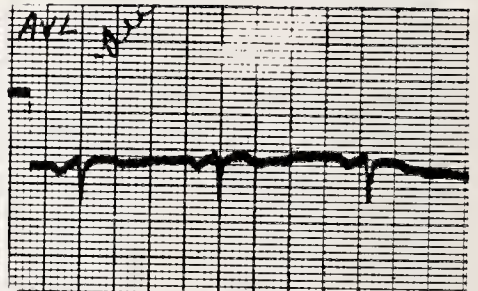
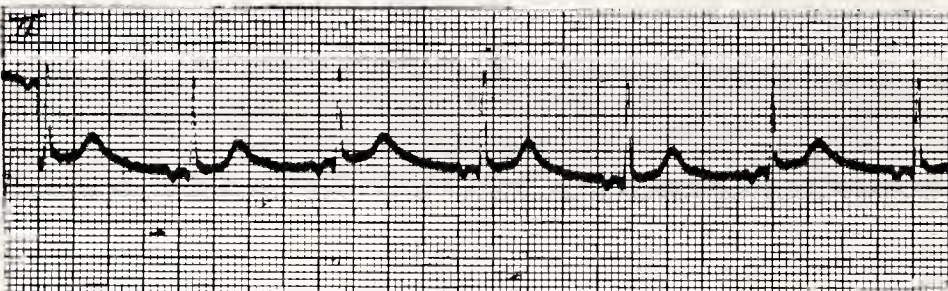
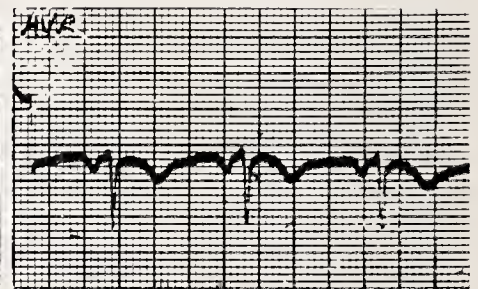
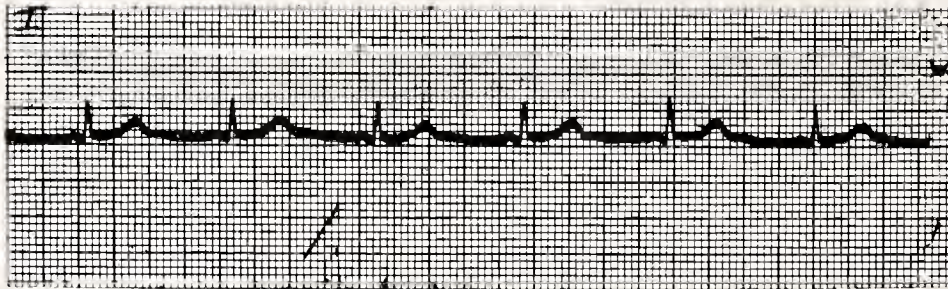
OF THE MONTH

• • • • •

WHAT IS YOUR INTERPRETATION?

AGE: SEX: MALE BUILD: BLOOD PRESSURE:
MEDICATION: UNKNOWN
HISTORY: NO CLINICAL INFORMATION AVAILABLE.

Answer on Page 249

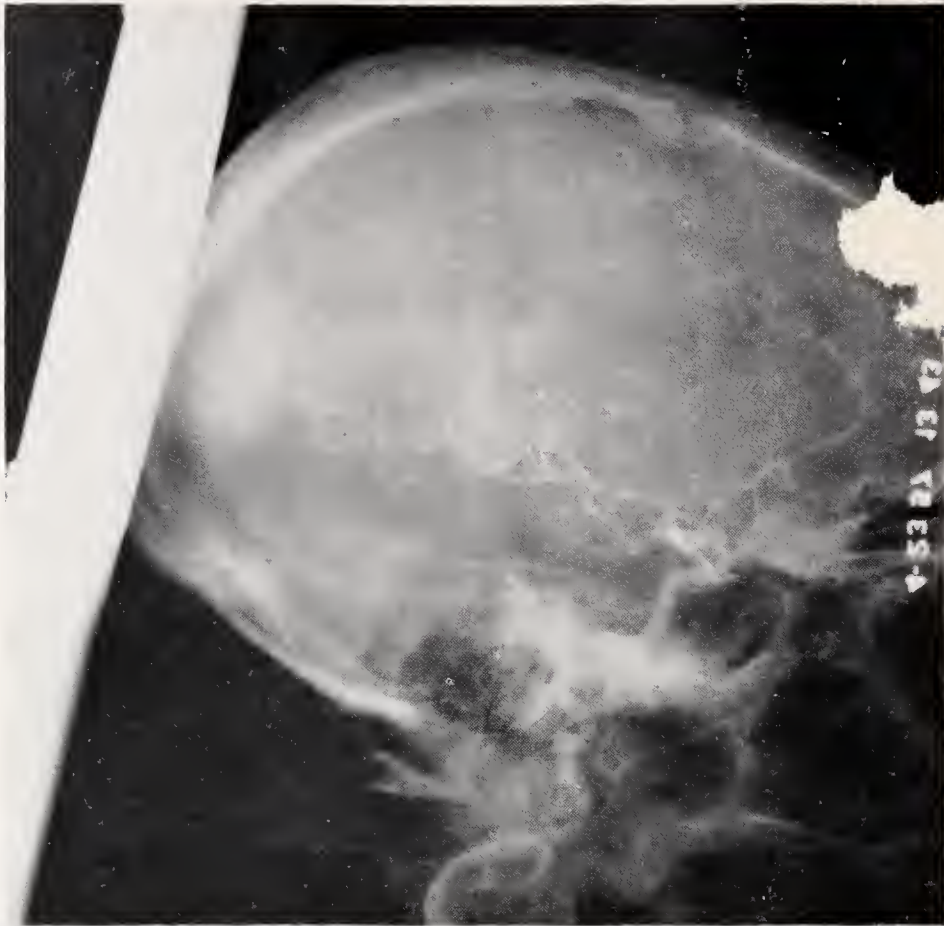


WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

Answer on Page 249







PUBLIC HEALTH AT A GLANCE

SCHOOL-AGE MOTHERS IN ARKANSAS – 1961

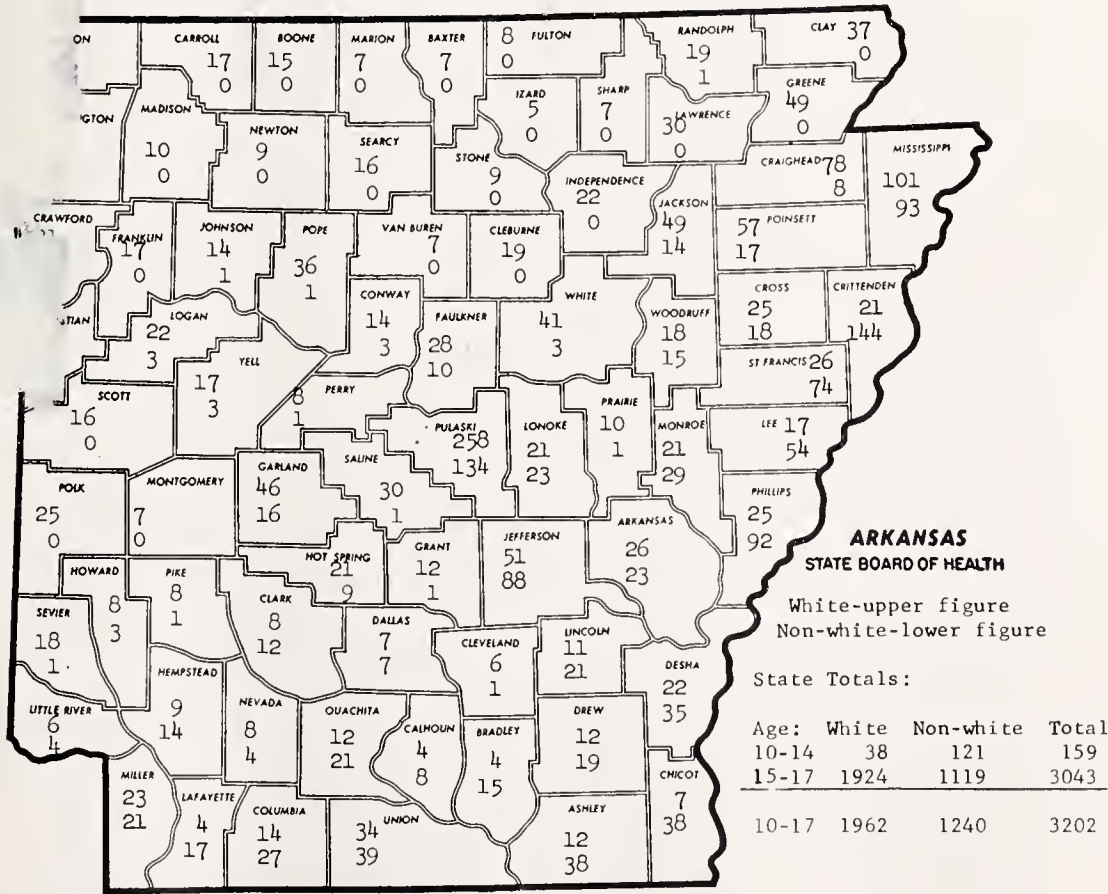
A total 3,202 girls seventeen years old or younger had babies in Arkansas in 1961. Of this total, 159 were less than 15 years of age. According to the Census Bureau, 37,210 white girls and 11,760 colored girls were in the 14, 15 and 16 year age groups in 1960. Assuming that all these remained in the state till the following year, 5% of the white girls and 9% of the colored girls in these age groups became mothers that year.

Maternal and neonatal death rates in the group

were only very slightly higher than for all births. Two deaths, one of a 16-year-old colored girl from sepsis, the other a 17-year-old white girl from hemorrhage, gave a maternal mortality rate for these young mothers of 6.2 deaths per 10,000 live births, almost the same as the 5.5 deaths per 10,000 live births for all mothers; the neonatal mortality rate was 17 per 1,000 live births as compared with a rate of 16 per 1,000 for all the births in the State.

SCHOOL-AGE MOTHERS IN ARKANSAS, 1961

Livebirths, white and non-white to mothers aged 10-17 according to county of residence of mother. (Out of State births, or mothers, not included)



Educationally, they could not have done so well. Few of them could have graduated from High School. The usual age of graduation of white girls in Arkansas in 1961 was 17 or 18, with 6% graduating before 17, 56% at 17, 34% at 18, 4% at 19 or older. The usual age at graduation of Negro girls was somewhat older, with 46% graduating at 17 or younger, 54% at 18 or older.

The compulsory school attendance law of Arkansas requires children to attend school from the ages of seven through fifteen, with certain

exemptions, including the completion of eight grades of school.

How much preparation for marriage and parenthood have these girls had in school? In the 1959-60 school year, the last year, presumably, that any of them could have attended, 25,513 girls were enrolled in Home Economics courses in the 8th grade or higher out of a total of 56,942 girls enrolled in the four grades in which the three years of Home Economics is usually offered. A one-term course in Family Problems is frequently given after the second or third year.



EDITORIAL

MEDICINE CAN PROMOTE GOOD WILL

By Alfred Kahn, Jr., M.D.

PEOPLE WHO HAVE NOT VISITED our American neighbors south of the Rio Grande cannot possibly appreciate the scope of their problems. Nor can the average U.S. citizen realize the latent and manifest good will felt toward us in some of these countries, as for example, Mexico. The Latin-American countries are a different world from ours.

Visiting Mexico, one of our staunchest friends and allies, can provoke many interesting thoughts. The typical Mexican is of mixed derivation, Indian and Spanish. This union seems to have brought out a real vigor and this is widely appreciated in their art. The University of Mexico has perhaps the most modern handsome physical plant of any university in the world, and was entirely designed by Mexican architects. On the walls of the building are giant murals, one of which depicts the dual origin of the average Mexican. In this vast university is a fine school of Medicine, one of a number now flourishing in this Republic. Although evidence of an interest in art is everywhere, industrial development and scientific research are still in their early stages. Many new buildings are seen in Mexico City, yet an hour's ride in the outskirts reveals many very old villages with very old buildings, unpaved streets, and old sanitation facilities.

Mexicans are capable and we can mutually benefit from their vast reservoir of good will for Americans. They have serious problems, too. Their most pressing problem is the need to raise their standard of living. In years past, Mexicans were of two classes, a few very rich and many extremely poor. The elevation of the extremely low economic group to a middle income group is now proceeding slowly. The Mexican government and the average Mexican citizen is well aware of the need for an adequate income level for their working people and farmers. It is in

this area that loans and other supporting help from this country can be of value. Probably such moneys would be spent in industrialization, as this offers the best long range solution to their financial problem. It is self-evident that if obvious political strings are attached to such loans or investments it will incur enmity instead of friendship in such an intensely rationalistic country.

Among the ancillary needs in a developing country is good medical care. American physicians can promote this by inviting Mexican physicians to meetings and by helping train Mexican physicians, who meet the requirements for training in our hospitals. Shumaker in a recent article in the J.A.M.A. discussed some of the problems in training foreign interns and residents. He concluded that it was difficult for foreign students to compete with our intern and resident staff due to language problems and differences in educational methods. He suggested sending teams of American physicians to foreign hospitals to teach and demonstrate American methods there. In any event broadening of medical contacts whether through conventions, visiting teams, or training of foreign students is bound to build much good will and to further raise standards of Medical practice.

Even though Arkansas does not share a common geographic boundary with Mexico and other foreign countries in this hemisphere, Arkansas physicians can help build good will in these countries by participating in training some of their qualified graduates either here or there. We could invite some of their outstanding teachers and research men to address our state meetings or attend as guests. Such contacts are mutually beneficial, and Arkansas and the lay public would benefit from the dissemination of medical knowledge.

MEDICINE IN THE



New Medical Education Loan Guarantee Program in American Medicine

A far reaching new medical education loan guarantee program is now under way in American medicine. The goal of this program is to help eliminate the financial barrier to medicine for all who are qualified and accepted by approved training institutions. It is designed to provide a means of financing a substantial portion of the cost of a medical education.

The loan program for medical students, interns and residents is the result of a cooperative effort by American medicine and private enterprise.

The program is administered by the American Medical Association's Education and Research Foundation. The ERF has established a loan guarantee fund. On the basis of this fund, the bank will lend up to \$1,500 each year to students. The ERF in effect acts as cosigner. For each \$1 on deposit in the ERF's loan guarantee fund, the bank will lend \$12.50.

More than 3,300 students, interns and residents have borrowed more than \$6,000,000 through this fund since it was started last February. Physicians and others have contributed almost \$700,000 to the loan guarantee fund, which makes possible these loans.

The guarantee fund is almost depleted and more money is needed immediately to keep up the loan program. Eventually it will become self-sustaining as loans are repaid, but right now substantial financial help is needed. Your check to the AMA-ERF, 535 North Dearborn St., Chicago, will help to keep this important program viable. Contributions to the Foundation are tax deductible.

LOAN ASSISTANCE, MEDICAL SCHOOLS AND MEDICAL STUDENTS

The availability of low interest loan funds in medical schools constitutes an important source of financial aid to many medical students. In the

present Datagram the results of a recent survey in this area are presented. This survey was conducted by the Committee of Financial Problems of Medical Students of the AAMC's Continuing Group on Student Affairs and every medical school in the United States was asked to provide data. The data reported are based on the questionnaire responses provided by faculty representatives in charge of students affairs in 66 four-year medical schools. It should be emphasized that these data do *not* include loan assistance provided directly to medical students by agencies and groups outside the medical schools, e.g., family, local medical societies, etc. However, they do include National Defense Education Act Funds made available to medical schools through their parent universities.

Figure 1 presents the figures on the proportion of medical students in each class receiving loan assistance from the schools and the average dollar value of loan assistance provided during the one-year period July 1, 1960 to June 30, 1961.

As shown in Figure 1, 4,951 students out of 24,615 or approximately 20% of the students in the 66 schools reporting received loan assistance. The average amount of loan received by a student was \$610. If the total amount of dollars loaned, by the 66 schools reporting, is projected over the eighty-one fully-developed four-year medical schools in the United States, the amount of loan funds available to medical students during the fiscal year 1961 would be approximately \$3,600,000. This figure may be compared with an estimated \$2,500,000 in non-refundable grants (scholarships, grants-in-aid, tuition, remission, etc.) awarded to medical students by the same medical schools during the same period. Thus, non-refundable grant funds available at medical schools during 1960-61 amounted to about $\frac{2}{3}$ of the available loan funds.

Several aspects of Figure 1 are worthy of com-

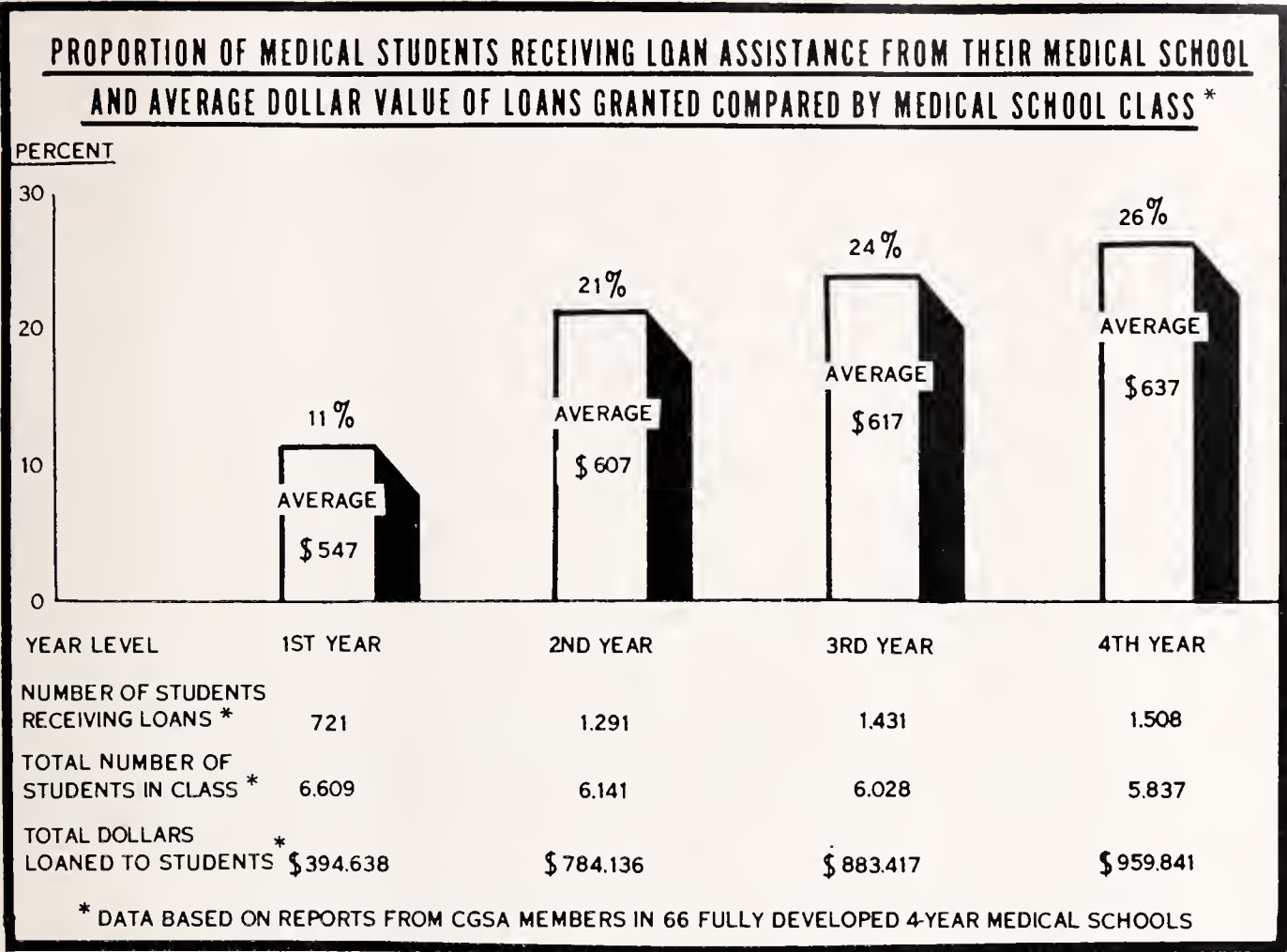


Fig. 1

Submitted by the Division of Operational Studies of the AAMC, 2530 Ridge Ave., Evanston Illinois.

ment. First, while only 5 schools reported that they did not give any loan assistance to first year students, it is evident that the first year class of medical students as a group receives substantially less loan assistance than does each of the other three classes. Secondly, the 2nd, 3rd, and 4th year classes are similar in both the proportion of students receiving loan assistance and the amounts of loan assistance provided.

Finally, while the adequacy of the available loan funds varies greatly from school to school, the survey results indicate that the eighty-one schools would have needed an estimated \$2,500,-000 to have granted *all* loan requests made by their students during 1960-61. Since student counselors in the medical schools review loan requests carefully, this figure is a conservative estimate of the additional loan fund needs of the medical schools of the nation.

Serious as this loan fund inadequacy is, it is significant that medical educators agree that a

much greater and more urgent shortage of non-refundable scholarship funds for medical students exists in this country.

IMPORT AND EXPORT OF MEDICAL PROFESSIONAL TALENT

The number of foreign-trained physicians issued licenses for the first time to practice medicine in this country has increased markedly in recent years. Also the proportion of foreign-trained licentiates relative to the total number of new additions to the medical profession has shown a striking increase during the same period of time. (See Figure 1 and Table 1.) Here "foreign-trained" licentiates refers to graduates of faculties of medicine located in countries other than the United States and Canada.

In 1950 approximately 6,000 newly licensed physicians were added to the medical profession in this country. Of these, about 300, or 5%, were graduated from foreign medical schools. Eight

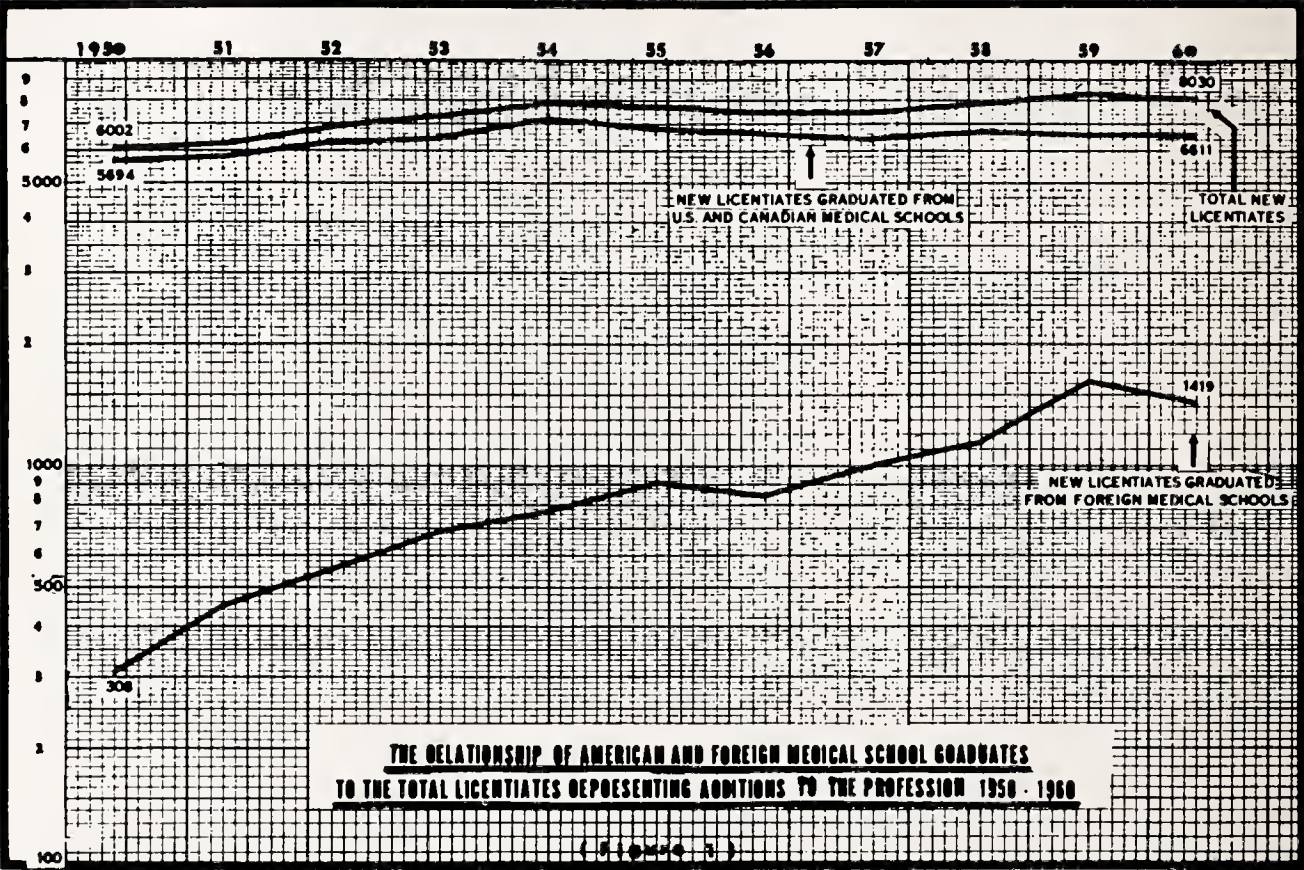


TABLE 1

THE RATIO OF FOREIGN MEDICAL SCHOOL GRADUATES TO THE TOTAL LICENTIATES REPRESENTING ADDITIONS TO THE PROFESSION 1950-1960

Year Licensed	Annual Licentiates Representing Additions to the Medical Profession	Additions Representing Graduates of Foreign Medical Schools	Percentage of Additions Attributed to Foreign Medical School Graduates
1950	6,002	308	5.1
1951	6,273	450	7.2
1952	6,885	569	8.3
1953	7,276	685	9.4
1954	7,917	772	9.8
1955	7,737	907	11.7
1956	7,463	852	11.4
1957	7,455	1,014	13.6
1958	7,809	1,166	14.9
1959	8,269	1,626	19.7
1960	8,030	1,419	17.7
	81,116	9,763	12.0%

Source State Board Number, J.A.M.A., Vol. 176, pp. 711 and 730, (May 27) 1961.

thousand new medical licentiates were added to the profession in 1960. Fourteen hundred of them, or almost 18%, were foreign-trained. The number of additions representing graduates of foreign medical schools increased substantially in each succeeding year between 1950 and 1960 and showed better than a fourfold increase from the beginning to the end of the eleven-year period. In 1960 the number of foreign-trained new licentiates was equal approximately to the output

of 14-16 average sized U.S. medical schools.

The opening of new American medical schools and the expanded enrollments of existing schools has also contributed to a gradual annual increase in the number of licentiates added to the profession. However, the increase in foreign-trained licentiates has been at a faster rate than that of their American trained counterparts, resulting in a higher ratio of foreign-trained licentiates to the total number of newly licensed physicians in

almost each succeeding year of the eleven-year period. Twelve per cent of all new additions between 1950 and 1960 were graduates of foreign medical schools licensed in U.S.A. (See Table 2.)

TABLE 2

U. S. CITIZEN GRADUATES OF FOREIGN MEDICAL SCHOOLS (EXCLUDING CANADA)
LICENSED IN U.S.A.

1950-54* (10-37 per year)	99
1954-55*	89
1955-56*	103
1956-57	212
1957-58	284
1958-59	366
1959-60	386

*Data not available for New York and Pennsylvania.

Source: Education Number, J.A.M.A., Vol. 174, p. 1459 (Nov. 12) 1960.

It is estimated that since 1957 somewhat more than 2,000 American students per year have been enrolled in foreign medical schools other than Canadian ones.

For the most part the figures reported in this Datagram are separate from the number of graduates of foreign medical schools serving internships and residencies in this country which amounted to 9,457 in 1960.

The indicated trend toward an ever-increasing proportion of foreign-trained physicians being admitted to practice in the United States—should it persist—might well arouse several engaging questions. For example: Is it wise for the United States, at a time of grave international insecurity, to become progressively dependent for the provision of medical care upon graduates of foreign countries and institutions? Is it proper for the United States with its wealth of medical resources for education, research and service, to import physicians in increasing numbers from countries with low physician-population ratios and a dearth of educational resources? Is it consistent to provide technical assistance through sending visiting staff to foreign schools while depriving them of their own professional competence in order to maintain our domestic physician-population ratio?

Conjecture on our part such as this is not intended in any way to suggest a limitation of international exchange of medical talent or resources. Quite the contrary. The recent establishment by the Association of a new Division of International Medical Education reflects the growing activity and sense of world responsibility of the Association and its members. However, as the subject

of foreign-trained licentiates relates to the fundamental problems of expansion of U. S. medical facilities and increased enrollments of medical students, it should be given thoughtful consideration and viewed in proper perspective.

The Month in Washington

Washington, D.C.—A special advisory committee reported to the Public Health Service that the occurrence of 12 cases of polio among persons who had taken 38 million doses of oral vaccine did not provide any ground for questioning the safety of the live-virus vaccine.

Reporting on the study by the advisory committee, Dr. Luther L. Terry, Surgeon General of the PHS, said:

“Following administration of more than 38 million doses of oral vaccine, only 12 cases, outside of the epidemic areas, including five from Oregon, have been reported which had their onset of illness within 30 days of vaccination.

“Although the number was very small in relation to the number given vaccine and the diagnosis in certain of these cases seems questionable, I decided to call together members of my advisory committee to examine in detail the diagnosis, laboratory studies, and epidemiological circumstances relating to each of the cases.

“The group met on two occasions, on Aug. 9 and 16, and after careful consideration of the facts, concluded that it was not possible to establish that the vaccine virus caused any of the cases. The advisers emphasized that polio viruses, as well as other viruses, are frequently present in the community and that it can be anticipated that occasionally poliomyelitis or illnesses simulating it may occur or following vaccination programs. Illness and injury completely unrelated to polio and naturally occurring cases or polio have continued and, no doubt, will continue to be attributed to the vaccines. Furthermore, it is well known and recognized that any effective medication administered to millions of persons will cause or appear to cause a number of side effects.

“The committee, in summary, urged the continuation of present and projected programs of immunization looking toward the final elimination of the disease.”

As of August 11, the approximate midpoint of the polio season, 274 cases of paralytic polio had been reported. The total, of which 129 cases were in Texas where outbreaks of type I had been oc-

curing, was the same as for a comparable period last year.

* * *

Life expectancy at birth reached an estimated 70.2 years in the United States in 1961, according to the Public Health Service.

The estimate was based on a 10 per cent sample of death records received by the National Vital Statistics Division from all the 50 states.

Deaths totaled about 1,702,000 in 1961—a rate of 9.3 per 1,000 population, only slightly higher than the record low rate of 9.2 for 1954.

Five of 10 leading causes of death showed sharp rate declines as compared with last year. The declines were large enough to make it improbable that they were produced by normal fluctuations due to sampling. The five were vascular lesions; accidents; influenza and pneumonia, except of newborn; general arteriosclerosis, and diabetes mellitus.

The infant mortality rate of 25.3 per 1,000 live births set a record low, about two per cent under the previous low of 25.7 recorded in 1960.

Recent statements that citizens of some foreign countries are healthier than Americans was disputed emphatically by the American Medical Association. The A. M. A. statement was prompted by a paper presented at the recent annual meeting of the American Sociological Association in Washington. The paper said that the United States is not as "healthy" as Sweden and England.

"This is like trying to compare apples to oranges," F. J. L. Blasingame, M.D., the A.M.A.'s Executive Vice President, said.

"There have been accounts that comparisons of a nation's overall health can be made on the basis of life expectancy—that the people of Sweden and Britain are healthier because they live longer on the average than Americans.

"This proves nothing, for what you are actually comparing are differences in the makeup of populations. Both of these nations have small, stable, homogeneous populations, whereas that of the United States is a vast mixing from practically every conceivable corner of the globe, including all nationalities and races. . .

"What you can prove statistically is that a person of Swedish descent in Minnesota lives longer than a Swede in Sweden, and that Mexicans apparently live longer in New Mexico than they do in Mexico. . .

"The death rate from automobile accidents is much higher in the United States than in any European country because a larger percentage of the population own cars. This is a matter of economics and not medicine. Yet auto fatalities are a large factor in reducing this nation's life expectancy."

Dr. Blasingame also pointed out the economic aspect of Americans living at a faster pace, consuming more expensive, fatty foods and dying of heart attacks with much more frequency.

"Communicable diseases, on the other hand, are almost entirely a medical problem and the fact is that the death rate from communicable diseases in the United States is well below that of England or Sweden," he said.

International statistics on infant mortality rates are meaningless, Dr. Blasingame said, because of different definitions for what is a live birth or a still birth.

"As for insinuations that longer life span and lower infant mortality are somehow linked with the socialized medical practices of England and Sweden, there is absolutely no substantiation," he said. "The rate of increase in longevity in England is no different now than it was prior to the founding of the National Health Service there in 1947, and may actually have declined."

Dr. Williams Receives Appointment

Marjorie J. Williams, M.D., chief of laboratory service at the Temple, Tex., Veterans Administration center, has been appointed deputy director of the pathology and allied sciences service, VA Department of Medicine and Surgery, Washington, D.C.

Chest Physicians Issue Statement on Cigarette Smoking

The Committee on Cancer of the American College of Chest Physicians for a number of years has been studying the effect of cigarette smoking on the pulmonary and cardiovascular systems. They are convinced that sufficient evidence has been accumulated to warrant issuing an official statement with regard to cigarette smoking and health. Accordingly, a resolution connecting cigarette smoking with various pulmonary and cardiovascular conditions was approved by the Board and issued by the College.

The resolution stated that the weight of scientific evidence distinctly indicates that cigarette

smoking and the inhalation of other atmospheric pollutants have an association relationship which strongly suggests a causal connection with chronic bronchitis, pulmonary emphysema, cor pulmonale, cardiovascular diseases and cancer of the lung.

The College urged its members and the medical profession to intensify their educational campaign directed toward the public, and the youth in particular, relative to the hazards of smoking. Also that efforts to control atmospheric pollution be encouraged.

Little Rock

Several hundred physicians and nurses from Arkansas and surrounding states were in Little Rock for a series of meetings and seminars in the medical field of obstetrics and gynecology. The University of Arkansas Medical Center played host to some of the sessions.

The annual meeting of District Seven of the American College of Obstetricians and Gynecologists was held. This College is made up of physicians from Arkansas, Alabama, Kansas, Louisiana, Missouri, Mississippi, Oklahoma, Tennessee, Texas, and the Canal Zone. Dr. William P. Devereaux of Dallas was chairman.

Serving as conference chairman of the nurses sessions was Dr. Michael Newton of Jackson, Miss.

Dr. Edward Hughes of Syracuse University, national president was in Little Rock for the meeting.



The Fifty Year Club of American Medicine

The Fifty Year Club of American Medicine is very anxious to gain more members in order to establish and finance a scholarship to assist some worthy medical student through school. To accomplish this goal, an enlarged membership and annual dues of \$5.00 are necessary. Please let Dr. J. H. McCurry, Cash, Arkansas, who is secretary of the Club, know whether you favor this project and if you will support it.

University of Vienna Seminar Congress

The American Medical Society of Vienna announces a Seminar Congress held in cooperation with the medical faculty of the University of Vienna. Courses are set up leading to the University Diploma (10-12 months' study), the University Certificate (3 months' study); and for doctors who will be just a few days in Vienna, the AMS arranges Seminar Congresses in specialist subjects. All courses are given in English and the cost ranges from \$70 a month for Diploma Courses to \$27 for a three-day Seminar Congress. Additional information may be obtained by writing: Joseph J. Boris, Director, Medical and Surgical Division, Alpha Travel Bureau, Inc., 200 West 57th Street, New York 19, N.Y.

Course in Laryngology and Bronchoesophagology March 18 through 30, 1963

The Department of Otolaryngology, University of Illinois College of Medicine, will conduct a postgraduate course in Laryngology and Bronchoesophagology from March 18 to 30, 1963, under the direction of Paul H. Holinger, M.D.

Registration will be limited to 15 physicians who will receive instruction by means of animal demonstrations and practice in bronchoscopy and esophagoscopy, diagnostic and surgical clinics, as well as didactic lectures.

Interested registrants will please write directly to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

Plan Your Vacation a Year Ahead

Make your plans now to take your vacation next year and attend the greatest annual medical show on earth when the annual meeting of the American Medical Association will be held in Atlantic City June 16-20, 1963. This meeting is designed as a period of post-graduate study to bring the physician up-to-date on the progress of medical science during the past year. More Arkansas physicians should attend these annual meetings. This occasion can also be made a pleasant vacation period for the physician and his family.

This article is written for the purpose of making a survey to determine whether or not there will be enough interested physicians and wives to charter an American jet non-stop flight from

Little Rock to Atlantic City. Eighty-five passengers are necessary to obtain the chartered flight. The regular round-trip first class air fare is \$164.70, but the chartered round-trip fare will run \$115.00, which means a saving of almost \$50.00. This constitutes a bargain because the following extra chartered services will be available: (1) Publicity on departure; (2) photos furnished each member; (3) flight designated as "Convention Special—Arkansas Doctors"; (4) hot meals and beverage service; (5) advertising banner; (6) special souvenir menu; (7) baggage delivered to hotel; (8) ground transportation to hotel.

We are anxious to find out how many people might be interested in a jet flight arrangement and are requesting that the following coupon be filled and mailed to the address indicated.

Dr. R. B. Robins
P. O. Box 118
Camden, Arkansas

Date-----

I will be interested in the American jet flight to Atlantic City June 16-20, 1963.

Comments on whether or not your wife and children will be in the delegation:

Signed-----

Address-----

EVANSTON, ILL.—The Association of American Medical Colleges announced today that it will accept applications from medical students for grants which will enable them to broaden their medical knowledge and know-how by serving at remote medical stations in the countries of Africa, Asia, and Latin America.

For the fourth year Smith Kline & French Foreign Fellowships for Medical Students are being offered to junior and senior students in U.S. medical schools. Descriptive brochures and application forms for the 1963 program have been mailed to all deans, said Dr. Ward Darley, executive director of the Association.

The closing date for filing applications is December 31, 1962.

The purpose of the Foreign Fellowships program is to provide selected medical students an opportunity to benefit from clinical experiences abroad. The Fellows study and practice medicine

in societies and cultures different from their own. They help to bring modern American medical procedures to remote areas where health services often are carried on in primitive surroundings. At the same time, the Fellows gain basic medical experience by observing and treating diseases not common in the United States.

During the first three years of the program, grants totaling \$150,000 have been awarded to 92 students from funds provided by the Philadelphia pharmaceutical firm of Smith Kline & French Laboratories. The sponsor recently announced that the Fellowships Program will be continued in 1964.

Fellows have performed in 34 countries. They are: Afghanistan, Bolivia, Brazil, Cambodia, Cameroun, Congo, Ecuador, Ethiopia, Ghana, Haiti, India, Indonesia, Iran, Japan, Korea, Liberia, Libya, Nepal, New Hebrides, Madagascar, Nigeria, Northern Rhodesia, Nyasaland, Pakistan, Peru, The Philippines, Sarawak, Sierra Leone, South Viet Nam, Southern Rhodesia, Tanganyika, Thailand, Uganda, and Union of South Africa.

The Selection Committee of the AAMC anticipates that Fellowship grants in 1963 will carry about 30 more students into challenging medical experiences in foreign areas.

"As individual and unofficial representatives of the United States and our system of medical education, the visiting students are making an important contribution to international medicine as well as international relations," noted Doctor Darley.

Fellowships are available to students who have completed their junior year of medical education, with eligibility continuing through their senior year. Senior students must plan on carrying out their programs before starting internship.

The average period of time spent abroad by SK&F Fellows is about 12 weeks, which coincides with elective quarters in most medical schools.

A Fellowship grant provides money for travel costs and living expenses at the site of the student's foreign sponsor. The amount of each award is determined according to individual expense and need, varying with different programs and locations.

Expenses of a professionally trained spouse will be included in some grants if this seems desirable in terms of the objectives of the proposed Fellowship project. In such instances, husband and wife

will work together as a medical team.

Selections are made by an AAMC committee comprised of six American medical educators under the chairmanship of Dr. Robert A. Moore, president of the State University of New York, Downstate Medical Center, College of Medicine.

Applications will be processed by the Selection Committee early in February, 1963, and award winners will be announced in early March, Doctor Darley said.

Students should obtain instructions and application forms from their deans.

For additional information, write to the Association headquarters at 2530 Ridge Ave., Evanston, Ill.

On August 26, 1962, the Medical Education Foundation for Arkansas Board of Directors held the first of a planned series of meetings to aggressively pursue the aims of the Medical Education Foundation as set out in its constitution and to consider and put in motion plans to increase the amount of money available for the purposes of the foundation. Present at the meeting were Dr. H. King Wade, Jr., Dr. Robert Watson, Dr. Winston K. Shorey, Dr. W. Martin Eisele, Dr. Jean C. Gladden, Mr. Eugene R. Warren, and Mr. Paul C. Shaefer.

It was agreed that the Board of Directors would consist of four appointed members and the president-elect of the Arkansas Medical Society, the president of the Arkansas Medical Society, the immediate past president of the Arkansas Medical Society and the Dean of the University of Arkansas School of Medicine, who shall be voting members ex-officio, making a total of eight members. The original appointed members selected by the Council of the Arkansas Medical Society are:

Robert Watson, M.D., Little Rock
W. Martin Eisele, M.D., Hot Springs
Jean C. Gladden, M.D., Harrison
Joe F. Rushton, M.D., Magnolia

By general agreement, Dr. Watson was appointed to a term of four years, Dr. Joe Rushton a term of three years, Dr. Martin Eisele to a term of two years, and Dr. Jean Gladden received the appointment of a one-year term on the Board.

Dr. Robert Watson was elected president and Dr. Martin Eisele was elected secretary-treasurer.

The Board felt that an immediate distribution of funds, or part of the funds, of the Foundation was indicated and with the agreement of the Dean of the School of Medicine voted to contribute \$2,000 to a student loan fund, to be called the Medical Education Foundation of Arkansas Student Loan Fund, to be administered by the Dean of the Medical School. The money is to be used to help needy medical students complete their education.

It was further decided to authorize Dr. Watson and Dr. Wade to disburse up to \$1,500 of Foundation funds for the purchase of microscopes for rental to needy medical students. It had been pointed out that each freshman student was required to furnish himself with a microscope and that microscopes cost between \$400 and \$800, constituting a financial obstacle that was almost insurmountable for a student working his way through school. It was directed that the microscopes so purchased be labeled in memory of Dr. Fount Richardson in recognition of his promotion of the establishment of the Foundation. Money received from the rental of the microscopes is to be returned to the microscope fund for the purchase of additional microscopes. The Medical School will purchase the microscopes and administer the microscope fund, reporting to the Foundation periodically.

Pending development of plans for expanding the Foundation, the Board directed the executive secretary to invest surplus Foundation funds in short-term securities earning the best interest rate obtainable for this short period.

The Board agreed that meetings would have to be held frequently until a specific program for raising money as well as an aggressive plan of assistance to the Medical School, its students, Medical Research, and the other purposes of the Foundation is developed.

It was generally agreed that part of the money remaining in the treasury could well be used to develop much larger sums of money through contributions by individuals of property and securities as well as cash. It was pointed out that persons in high income brackets can very often make huge contributions to such a foundation and actually save money through the exemption provisions of the income tax law.

The members of the Board were enthusiastic about the future growth of the foundation and

were unanimous in their request that Medical Society members offer their suggestions for worthy foundation enterprises as well as ideas for raising money in addition to the \$5 per member earmarked from Medical Society dues.

It is anticipated that another meeting of the Board will be held the latter part of November.

The University of Arkansas Medical Center is instituting this year a program of internship training in clinical psychology under a \$6,800 one-year grant from the National Institute of Mental Health.

Dr. Sidney J. Fields, senior clinical psychologist in the Medical Center's Department of Psychiatry, is training program director.

The first intern in the new program is Walter C. Venters of New Orleans, who will serve here one year in completing his training for a doctorate in psychology from Louisiana State University.

Dr. Fields said the internship period is a prerequisite for accredited graduate training programs awarding doctor's degrees in psychology.

Birmingham, Ala., Sept. 17—The 56th annual meeting of Southern Medical Association, to be held at the Hotel Fontainebleau in Miami Beach, Nov. 12-15, will be the largest in six years, according to Dr. J. Garber Galbraith, chairman of the SMA Council, the governing body of the association.

Not only is a record attendance of some 7,000 expected, Dr. Galbraith said, but the scientific sessions themselves will cover a wider range of topics, in addition to expanded scientific closed-circuit television programs emanating from Jackson Memorial Hospital, Miami, public telecasts for the benefit of the nation's health services, and three symposia geared to the rapidly changing problems of modern medicine.

"A symposium on astromedicine will be conducted by physicians, scientists and members of the armed services who are playing vital roles in space developments," Dr. Galbraith said. "These men have been intimately connected with the Cape Canaveral project in its every aspect, including the selection of the nation's astronauts. What they have to say will be of prime significance."

Another symposium presented will be on endocrinology and a third will brief physicians on modern office practices.

The twenty-one scientific section programs, from anesthesiology to urology, will have as guest speakers internationally known heads of departments in leading medical schools, outstanding professors of medicine, and veteran practitioners in various fields.

A featured speaker at the President's Luncheon, to be held Tuesday, Nov. 13, is Dr. Edward Annis, president-elect of the American Medical Association.

Senior medical students from 21 southern schools of medicine, selected by their classmates, will attend the sessions. The medical student representative program, begun some five years ago, has grown rapidly, schools participating increasing from nine to twenty-one, with representatives from all medical schools in the South to be included in 1963.

Groups representing several of the medical specialties will meet conjointly with Southern Medical Association, participating in SMA's Section programs as well as their own meetings. Conjoint societies are American College of Chest Physicians, Southern Chapter; The College of American Pathologists, Gulf and Southeastern Regions; The Radiological Society of North America and the Southern Gynecological and Obstetrical Society.

Fifteen medical schools have arranged to hold alumni reunions during the 4-day sessions, with a number of social functions planned. Social activities also include a senior and junior golf tournament, President's Luncheon, President's Night Dinner-Dance, and the Woman's Auxiliary Doctor's Day Luncheon, tours of the area, and other informal affairs.

More than 65 scientific exhibits have been planned, and some 100 pharmaceutical houses and suppliers of services to physicians will hold exhibits during the meeting.

Dr. A. Clayton McCarty, Louisville, Ky., is president of the 15,000-member Southern Medical Association, the largest general regional medical society in the country.

A University of Miami heart specialist, Dr. Robert J. Boucek, addressed Arkansas' first bi-annual research forum of the student American Medical Association at the University Medical Center in Little Rock on September 14, 1962.

Doctor Boucek, head of the Florida school's cardiology section and senior investigator

of the Howard Hughes Medical Institute in Miami, discussed the vascular system of the heart. The forum was open to all Arkansas physicians, and was attended by the school of Medicine faculty and students.

Dr. Boucek was graduated from the University of Pittsburg School of Medicine in 1954 and completed postgraduate training in internal medicine and physiology at Mayo Clinic and the University of Minnesota. Prior to joining the Miami University School of Medicine faculty, he was director of the Miami Heart Institute research laboratories.

At the Arkansas forum, he also served as a member of a three-man panel which judged eight research papers presented by medical students who worked at the Center during the summer on honors program or fellowship grants. A \$50.00 prize was awarded to the student with the best presentation of his research paper. The award went to Stuart Harris of Stamps.

Neal Robinson, a senior medical student from Rogers and student body president, introduced Dr. Boucek at the afternoon program and Gary Williamson of Hot Springs, student vice president, presented the research paper speakers. Ed Barron of Little Rock, a senior medical student, is president of the AMA's Arkansas chapter, which planned and organized the program.

LITTLE ROCK—A 21-year-old sophomore at the University of Arkansas School of Medicine received a \$50 award for presenting the best research paper at a Student American Medical Association forum last Friday (Sept. 14).

He is Stuart Harris of Stamps, Ark., who reported on his investigation of a chemical compound, alloxan, that causes diabetes in animals.

Harris was one of 57 medical students who worked at the University Medical Center this summer on research projects under the honors program or scholarship grants.

His paper, outlining the effect of alloxan on naturally manufactured chemicals of the human body, was one of eight presented at the SAMA research forum at the Medical Center. Harris, whose research was under the direction of Dr. P. S. Younathan of the biochemistry department

and Dr. Joseph Stone of pharmacology, said it is hoped that further research of alloxan will contribute to the understanding of diabetes. He plans to continue the project next summer.

The award was presented by Dr. Robert J. Boucek, a University of Miami, Fla., cardiologist who was principal speaker at the forum and one of the research paper judges.



O B I T U A R Y

Dr. Peter Trinca

DR. PETER J. TRINCA, prominent El Dorado surgeon, died at Warner Brown Hospital Monday, August 20, 1962. He was 45.

A 1940 graduate of the University of Arkansas School of Medicine, Dr. Trinca interned at St. Joseph's Infirmary in Louisville, Kentucky, and served in the Army Medical Corps. After practicing in Fulton, Kentucky, he took further surgical training at Grand Rapids, Michigan, returning to El Dorado to practice in 1955. He served as chief of staff of Warner Brown Hospital. He was past president of the Union County Medical Society and a Fellow of the American College of Surgeons.

Dr. Asa C. Watson, Sr.

DR. ASA COLLINS WATSON, SR., aged 70, a retired psychiatrist and a former assistant superintendent at the State Hospital at Benton, died Monday, September 17, 1962 at a Little Rock Hospital. He was at the State Hospital from 1936 until 1945. In 1953 he became assistant superintendent at Western State Hospital at Bolivar, Tenn., where he remained until he retired in July 1961. He was a Methodist, a member of the Bolivar Rotary Club and had been in the Medical Corps during World War I. Survivors include his wife, Mrs. Eulah Bollinger Watson, a son, Dr. Asa C. Watson, Jr. of Fort Worth, Texas, and two grandchildren.



PERSONAL AND NEWS ITEMS

Dr. Martin to Practice at Ola

Dr. Damon G. H. Martin has joined Dr. James O. Bennington in the practice of medicine in Ola. Dr. Martin formerly practiced in Danville as a partner with Dr. W. P. Harris.

Doctor's Office Damaged by Blast

An explosion, apparently set off by a leaky gas pipe and a central air conditioning unit, ripped through the office of Dr. A. W. Thompson in Gurdon the night of August 23.

Damage to the building was estimated at \$15,000. Damage to the equipment was not determined. No one was in the office at the time.

Salem Physicians Form Partnership For New Clinic

Dr. David Ducker and Dr. Carl B. Arnold of Salem are forming a partnership for the operation of their new clinic under construction in Salem. The clinic will be adjacent to the ground of the new Fulton County Hospital.

Dr. Maley Heads Texarkana Heart Group

Dr. M. C. Maley was elected chairman of the Texarkana Heart Association for 1962-63 at a meeting at Wadley Hospital.

Dr. Cheney Builds New Clinic

Dr. Maxwell G. Cheney of Mountain Home is building a new clinic in that city.

Bradford Doctor Is President of Grain Co-op

Dr. Bernard C. Smith of Bradford has been re-elected president of the White County Grain Drying Cooperative for the coming year.

Dr. Levy Speaks to Kiwanians

Dr. Jerome S. Levy recently discussed the mass polio immunization program at a meeting of the Pulaski Heights Kiwanis Club in Little Rock.

Little Rock Doctor Elected to Medical Group

Dr. J. M. Robinson of Little Rock has been chosen third vice president of the National Medi-

cal Association at their recent 67th annual convention in Chicago.

Kolb-Callaway Clinic Holds Open House

The new Kolb-Callaway Clinic in Clarksville, operated by Dr. James M. Kolb, Sr., and his son-in-law, Dr. James R. Callaway held open house Sunday, August 19.

Polio Drive Postponed

Oral Sabin vaccine was to have been given in all 75 counties of the state on September 30, 1962. This mass inoculation has been postponed until a later date.

Medical Clinic Opened in Dardanelle

The new Dardanelle Clinic opened on Saturday, September 1, 1962. Dr. Gene D. Ring and Dr. Jerome Luker will operate the clinic.

Medical Society Appeals for Blood Donors

Dr. Kenneth Baldrige, President of Cleburne County Medical Society, has issued an appeal for blood donors for emergency cases in the Heber Springs Hospital.

Med Center Gets New Orthopedic Director

Dr. Benjamin W. Drompp, 41, former associate professor in orthopedics at Wayne State University College of Medicine in Detroit, is replacing Dr. Dana M. Street as head of the division of orthopedic surgery at the Medical Center in Little Rock. Dr. Street has taken a position with a hospital in California.

Dr. Drompp is a member of the American Medical Association and of the American Academy of Orthopedic Surgeons.

Dr. Ketz Speaks to Workshop

Dr. Wesley W. Ketz, Batesville physician, recently was guest speaker at the Leaders Workshop Conference of the Arkansas Education Association at Arkansas State Teachers College in Conway.

AMA-ERF LOAN PROGRAM

LOANS BY STATE
THROUGH AUGUST 20, 1962

State or Possession	Medical School		Hospital	
	No.	Dollars Loaned	No.	Dollars Loaned
Alabama	1	\$ 1,400	11	\$ 13,900
Arizona	1	1,200	6	6,400
Arkansas	30	34,500	2	3,000
California	177	206,900	87	109,300
Canal Zone	—	—	2	2,500
Colorado	66	64,800	23	24,500
Connecticut	8	9,200	9	10,500
Delaware	—	—	—	—
District of Columbia	106	128,300	34	43,100
Florida	55	65,400	34	43,200
Georgia	43	50,000	23	25,900
Hawaii	—	—	3	3,000
Illinois	100	86,900	39	43,600
Indiana	76	87,500	16	18,400
Iowa	60	70,400	11	12,300
Kansas	—	—	6	6,700
Kentucky	22	26,200	4	4,700
Louisiana	40	47,500	21	24,900
Maine	—	—	—	—
Maryland	17	19,500	19	24,900
Massachusetts	9	10,000	22	25,400
Michigan	40	43,300	29	36,500
Minnesota	26	27,400	37	42,800
Mississippi	45	45,000	15	19,600
Missouri	83	99,000	28	33,700
Montana	—	—	—	—
Nebraska	44	49,300	3	4,000
New Hampshire	—	—	3	4,500
New Jersey	11	2,500	4	5,000
New Mexico	—	—	3	4,200
New York	21	25,400	82	98,700
North Carolina	28	34,900	11	14,100
North Dakota	9	9,700	—	—
Ohio	50	52,100	57	67,300
Oklahoma	56	59,200	13	16,900
Oregon	8	7,300	6	7,000
Pennsylvania	34	40,700	54	63,200
Puerto Rico	15	19,300	4	5,300
Rhode Island	—	—	4	5,500
South Carolina	19	23,000	1	1,500
Tennessee	124	134,100	19	21,900
Texas	95	90,100	44	52,200
Utah	16	16,700	19	22,000
Vermont	10	10,500	4	3,000
Virginia	22	26,300	9	11,700
Washington	2	2,100	13	15,100
West Virginia	23	28,200	5	6,600
Wisconsin	39	48,400	11	14,200
South Dakota	18	21,100	—	—

Contributors to the American Medical Association
Education and Research Foundation

Contributions from Arkansas during August 1962:	
Dr. Berry Moore, Jr., El Dorado	\$10.00
Dr. Berry Moore, Sr., El Dorado	10.00
Dr. Warren S. Riley, El Dorado	6.00
Dr. David M. Yocum, El Dorado	40.00
Craighead-Poinsett Medical Auxiliary	5.00
\$71.00	

ANSWER—Electrocardiogram of the Month

RATE: 70 RHYTHM: Wandering pacemaker, nodal and sinus

PR: Variable QRS: .06 sec. QT: .38 sec.

INTERPRETATION: Abnormal. P waves abnormal direction at times with short P-R interval. Wandering pacemaker, nodal and sinus.

COMMENT: This tracing was recorded on a patient who had been found unconscious in the street. Subsequent examination disclosed evidence of a fracture of the skull and no evidence of heart disease was present. There was a question of previous convulsive seizures. Since convulsive seizures may occur incidental to periods of changing A-V block, or other transient arrhythmias, an electrocardiogram is frequently of extreme importance. In the present instance the patient was transferred to another hospital and follow-up examination could not be performed.

ANSWER—What Is Your Diagnosis?

No. 07-53-44 62-year-old white female

History of post-prandial distress, nausea, and vomiting.

DIAGNOSIS: Calcified gallbladder.

X-RAY FEATURES: Calcification in the right upper abdomen above the proximal barium-filled transverse colon, quite typical of that within the gallbladder wall.

13-43-70 69-year-old colored female

History of automobile accident without immediate sequelae eight weeks prior to admission. Three weeks prior to admission she developed symptoms of a left cerebral vascular accident with right-sided hemiplegia. Coma developed two days after admission.

DIAGNOSIS: Left subdural hematoma.

X-RAY FEATURES: There is a rather dense streak of calcification in the midline representing calcified falx cerebri which is slightly displaced toward the right. The internal carotid arteriogram shows marked displacement of the anterior cerebral artery to the right of the midline with its upper branches buckling under the falx. On the lateral view the middle cerebral group of vessels are depressed downward. In the AP view the middle cerebral vessels are markedly displaced downward in the parietal region where they should normally extend all the way up to the inner wall of the calvarium. This cavity was filled with a large subdural hematoma.



BOOK REVIEWS

CLINICAL BIOCHEMISTRY, Sixth Edition, by Abraham Cantarow, M.D., Professor of Biochemistry, Jefferson Medical College; Formerly Associate Professor of Medicine, Jefferson Medical College and Assistant Physician, The Jefferson Hospital, Philadelphia, and Max Trumper, Ph.D., Formerly Lecturer in Clinical Biochemistry and Basic Science Coordinator, Naval Medical School, National Naval Medical Center, Bethesda, Maryland, pp. 776, published by W. B. Saunders Company, Philadelphia and London, 1962.

This textbook of clinical biochemistry has been an outstanding success with medical students and teachers. In its sixth edition it is probably better than ever. This book is easy to read and is exceedingly well indexed. Perhaps its only deficiency is lack of illustrations and tables. On the other hand, this is balanced by excellent references and authoritative information delivered in a simple, easy to understand style. The organization of the book is rather conventional; however, it is of interest that there is a section on hormone assay and endocrine function, edited by A. E. Rakoff. This is of real value. This book is heartily recommended to all medical students and practitioners.

AK

GYNECOLOGY, by Langdon Parsons, M.D., Professor of Obstetrics and Gynecology, Boston University School of Medicine, Chief of Gynecology, Massachusetts Memorial Hospitals, and Sheldon C. Sommers, M.D., Pathologist, Scripps Memorial Hospital, pp. 1250, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1962.

This textbook is rather encyclopedic in its coverage of the field of gynecology. It is well written and well illustrated. There are excellent illustrations of pathological processes. Various unusual situations are discussed; for example, there is one dealing with sex rearing of a child

with an intersex problem. Of particular interest are the chapters on sterility. There is a good chapter on investigation and treatment of the male factor in sterility. This book is heartily recommended to medical students and practitioners as being an excellent text on gynecology. AK

SURGERY IN WORLD WAR II—ACTIVITIES OF SURGICAL CONSULTANTS, VOLUME I, Medical Department, United States Army. Prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Editor in Chief, Colonel John Boyd Coates, Jr., M.C. Editor for Activities of Surgical Consultants, B. Noland Carter, M.D. Associate Editor, Elizabeth M. McFetridge, M.A. Office of the Surgeon General, Department of the Army, Washington, D.C., 1962. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C.

This book describes the surgical facilities offered in World War II. Discussions include General Surgery, Orthopedic Surgery and Specialty Surgery. There is a discussion of the Surgical Consultants Program in the different service commands. There is a moderate number of illustrations. The book is well written and intensely interesting.

AK

WOUND BALLISTICS, Medical Department, United States Army. Prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Editor in Chief, Colonel James Boyd Coates, Jr., MC. Editor for WOUND BALLISTICS, Major James C. Beyer, MC. Office of the Surgeon General, Department of the Army, Washington, D.C., 1962. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.

This book is of intense interest, both from a medical and historic point of view. It is the most important book on this particular topic to come to this reviewer's attention. All military surgeons will be intensely interested in this volume. There are discussions of the ballistic characteristics of wounding agents. Enemy ordnance is discussed. The wound casualties are exceptionally well covered. This book contains illustrations of wounds, numerous charts and diagrams, and it is heartily recommended to all military surgeons. AK



Sponsored by Arkansas Tuberculosis Association

UNTREATED INACTIVE PULMONARY TUBERCULOSIS

Because of the risk of reactivation of inactive tuberculosis, followup of persons with inactive disease should receive high priority in programs to find active cases, according to findings in a study conducted in Muscogee County, Georgia.

Information gathered by the Muscogee County (Georgia) Tuberculosis Study was used to estimate the prognosis of untreated inactive pulmonary tuberculosis.

The population from which the cases of untreated inactive pulmonary tuberculosis were drawn comprises all persons between 15 and 64 years of age who were first reported between January 1, 1946, and January 1, 1956, to the Muscogee County Tuberculosis Study as having definite or suspected tuberculosis. They had never been advised to be hospitalized for tuberculosis and were still registered as having suspected or definite pulmonary tuberculosis two years after the first report.

STUDY POPULATION

A total of 1,327 persons were included in the study. Almost 70 per cent of the cases were in whites and 30 per cent in Negroes. However, the rate was slightly higher among Negroes since considerably fewer Negroes than whites resided in the county. A much higher proportion of Negroes than whites was classified as having advanced disease, 44 per cent as contrasted with 23 per cent. For both races, the proportion of advanced tuberculosis was larger in the 15 to 44 age group than in the 45 to 64.

More than three fifths of the cases were found among presumably healthy groups. Only a few were identified because they had been in contact with a case of active tuberculosis. A third of the total group was classified as symptomatic.

No single criterion for defining active tuberculosis seemed adequate. Even the finding of acid-fast bacilli with the cultural characteristics of *Mycobacterium tuberculosis* was not satisfactory since acid-fast bacilli have been isolated with considerable frequency from certain healthy population groups. The use of roentgenographic

change also seemed inadequate as the only criterion.

ACTIVITY DEFINED

The most appropriate weighting of the various diagnostic factors appeared to be defining the onset of significantly active disease as the time when hospital treatment was first recommended, this being recognition of a significant adverse change in a patient's condition.

Inactive tuberculosis was defined as the absence of significantly active tuberculosis for at least two years after the individual was reported to the study as a tuberculosis case or suspect. Of the 1,327 persons, 314 were thought to have active tuberculosis. Five persons without evidence of active disease are known to have died during the two-year period. The remaining 1,008 comprise the inactive cases for this analysis.

The analysis includes observations on all persons in the study population through June 30, 1960, with the total period of observation ranging from four and a half to 14 and a half years. Because two years had to elapse before a person could be classified as having inactive disease, the potential range of observation for cases of inactive tuberculosis was two and a half to 12 and a half years.

Of the 68 persons for whom hospital treatment was recommended, 60 had positive bacteriologic and roentgenographic evidence of active tuberculosis. Of the 940 persons for whom hospital treatment was never recommended, two had both bacteriological roentgenographic evidence of active disease.

RISK FACTORS

Of the 1,008 persons who had not developed active disease in the first two years, 68 were considered to have developed active disease during the next seven years, 53 of them during the next five years. The risk was greater for Negroes than for whites, for younger than for older persons, and for those with advanced disease than for those with minimal or suspected disease initially. The risk for males was not significantly different from that for females.

For Negroes with advanced inactive tuberculosis, the risk of developing active tuberculosis

within a five-year period was somewhat greater than 30 per cent, and for whites approximately 10 per cent. For persons with minimal or suspected disease who were under the age of 45 years, the risk of reactivation was approximately 15 per cent for Negroes and 5 per cent for whites. For older persons with minimal or suspected disease, the rate approximated 4 per cent for Negroes and 2 per cent for whites.

The risk of reactivation for inactive cases was greater shortly after the subjects were placed in that category, and tended to diminish thereafter. Among persons with little evidence of disease initially, the risk of reactivation appeared to approach zero for whites and older Negroes after about eight years of observation. For younger Negroes with minimal or suspected tuberculosis initially, the risk of reactivation remained high throughout the study.

This study shows that followup of persons with inactive disease should receive high priority as a procedure for finding active tuberculosis. Few, if any, other groups in this country will experience a comparable incidence of active disease.

LONG SUPERVISION NEEDED

Although the risk of reactivation may decrease with the passage of time after initial report, it remains sufficiently great to warrant supervision for at least 10 years after a suspected tuberculous lesion is recognized.

How frequently periodic examinations should be made is a much more difficult question. The answer depends to a considerable extent on whether reactivations tend to be acute and symptomatic, or chronic and insidious. It is not possible to be certain about this unless persons with inactive tuberculosis are examined frequently over a long period of time, and this was not done in the present study. However, many reactivations seemed to have occurred acutely, often causing the patient to seek medical advice before the next scheduled examination. One might suggest routine examinations every three to six months for the first few years of observation, with annual examinations thereafter. Prolonged followup with infrequent examinations may well be more valuable as a reminder that prompt medical evaluation should be sought when respiratory symptoms occur than as a direct measure to detect asymptomatic reactivation.

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References: (1) Malone, F. J., Jr.: *Mil. Med.* 125:836, 1960. (2) Martin, W. J.; Nichols, D. R., & Cook, E. N.: *Proc. Staff Meet. Mayo Clin.* 34:187, 1959. (3) Ullman, A.: *Delaware M. J.* 32:97, 1960. (4) Petersdorf, R. G.; Hook, E. W.; Curtin, J. A., & Grossberg, S. E.: *Bull. Johns Hopkins Hosp.* 108:48, 1961. (5) Jolliff, C. R.; Engelhard, W. E.; Ohlsen, J. R.; Heidrick, P. J., & Cain, J. A.: *Antibiotics & Chemother.* 10:694, 1960. (6) Lind, H. E.: *Am. J. Proctol.* 11:392, 1960.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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MANAGEMENT OF NECK MASSES

Steven G. Economou, M.D.

*College of Medicine
From the Division of Surgery,
The Presbyterian-St. Luke's Hospital, Chicago, Illinois,
in affiliation with the University of Illinois*

Introduction

WHEN CONSIDERING THE ORGANS arising within or passing through the neck, they are probably unmatched elsewhere in the body for variety of: embryonal origin, histologic structure, physiologic function, or anatomic complexity. For this reason, numerous lesions may be adjacent and present with a similar clinical appearance, yet be diametrically opposite in their significance and consequently in their management and prognosis. The presence of many important structures in this area makes understandable the need for the most careful appraisal before performing surgery on neck masses.

Generally speaking, most persistent unilateral masses in the neck in adults, exclusive of the thyroid gland, are malignant. They are most often metastatic and most often this is from an oro-pharyngeal primary. Obviously there are many exceptions to this generalization. However, awareness of it can keep the clinician aware of the broad diagnostic possibilities in neck masses. This in turn can lead to a more meaningful history and a more productive physical examination.

History

The history is valuable with respect to duration of a lesion. Lesions present since birth or childhood more likely are congenital in origin. Generally, lesions present for more than several weeks are more likely to be neoplasms although not necessarily malignant ones. Lesions of less than two weeks duration are usually inflamma-

tory in origin. A history of recent infections, tooth extractions, etc., can be valuable in shedding light on the differential diagnosis. However, it is as important not to be misled by recent happenings which the patient may try to associate with this tumor mass. Frequently the squamous cell carcinoma of the lower lip is the "pimple" that the patient cut while shaving and that he feels will not heal because he constantly traumatizes it. Or, the patient has a "cold sore" which has just lingered on from a previous respiratory infection, when in reality it is a malignant lesion from its inception. Fever, adenopathy elsewhere, hoarseness previous intestinal or breast surgery and numerous other clues to the etiology of a neck mass emphasizes the importance of obtaining a thorough history of the patient's illness.

Physical Examination

When examining a patient with a neck mass, the inspection can best begin with doctor and patient sitting and facing each other. Asymmetries can best be looked for and more readily distinguished from the minor but common differences between either side of the face. Inspection from a lateral view can be valuable in detecting midline lesions such as thyroglossal duct cyst or even unilateral protuberances especially in the post-auricular areas.

During palpation of the neck the use of one hand atop the head to rotate, flex or extend the neck, makes palpation easier and more complete. The sequence of areas to be examined is unimportant providing a routine is established which will minimize the chances of skipping any one

area. A satisfactory sequence of examination is to begin at the angle of the jaw and proceed along the anterior border of the sternocleidomastoid muscle toward the sternal notch. The thyroid can be palpated from this position using the thumb and index and middle fingers. Palpation of this organ from behind is probably more accurate. The submaxillary triangle is examined next followed by examination of the posterior triangle of the neck. The physician now can continue with the examination from behind the patient. The neck should be flexed slightly to decrease tension of the anterior group of muscles and allow for easier and deeper palpation. Examination from behind allows for a more thorough palpation of the area behind the angle of the jaw. From this position, and with a hand on either side of the neck, the thyroid gland can be very accurately evaluated. Displacing it to one side or the other allows the opposite examining finger to delineate even small nodularities.

The common intra-oral source of a primary makes intra-oral and naso-pharyngeal examination mandatory in the performance of an adequate examination. I prefer to again resume a position facing the patient. It is of course necessary that the patient remove full or removable partial dentures. The lip can be palpated with the thumb and index fingers. A tongue blade in each hand makes it easier to manipulate tissues intra-orally. The labial and buccal mucosal surfaces are next inspected. The tongue is examined while extended and at this time the pharynx and tonsils are observed. With tongue retracted it can be pushed to one side and then the other with a tongue blade for visualization of its lateral surfaces and also the lateral floor of the mouth. The tip of the tongue can then be pushed upwardly to examine its undersurface and also the anterior floor of the mouth. Then follows the examination of the gingiva and the palate. With a finger cot the floor of the mouth can be examined bimanually and this allows a more thorough evaluation of the submaxillary triangle. Because of the gagging it produces, the base of the tongue is palpated last. This maneuver is very important because it may reveal submucosal tumors otherwise not seen with the naked eye.

The physical examination proceeds with the mirror-examination of the naso-pharynx. A large mirror is used to examine the base of the tongue,

epiglottis, vallecula and hypopharynx and larynx. With a smaller mirror and with the tongue depressed, the soft palate comes sufficiently forward to allow examination of the naso-pharynx. Examination of the ears, nasal passages and maxillary antra is highly desirable but these areas infrequently harbor the etiology of a persistent neck mass in an adult.

Types of Tumors

TUMORS ARISING IN THE NECK.

Submaxillary salivary gland neoplasms are most frequently malignant. However, most enlargements of this gland are secondary to blockage of the duct by stone. Neoplasms are usually painless but sialadenitis usually is painful and of recent and sudden onset. X-rays of this area may demonstrate the stone and if not, a sialogram may be of assistance. Removal of the stone will be followed by subsidence of the mass if this is an initial or mild attack. Only with repeat obstructions and infection, and an irreparably infected gland, is extirpation of the gland indicated. Neoplasms must always be excised and the extent of further therapy determined by the pathologic diagnosis.

Parotid Tumors may extend down into the neck. Most parotid tumors are benign and of the mixed tumor type. They present a firm to rubbery consistency and they may be globular to nodular in configuration. They may attain a considerable size and usually they are painless. Of course it is very difficult to state with certainty their histology by clinical examination and even if known to be benign, it is unreasonable to assume it will remain so. It is felt that persistent or recurrent tumors in the parotid may sometimes assume a malignant course. Since the benign tumors are radio-resistant, and the malignant ones can be best cured by surgery, it is mandatory that all resectable tumors be treated surgically. With few exceptions it is wiser and safer to purposely identify the nerve during tumor dissection than to attempt to remove the tumor and hoping that a nerve not seen is a nerve not damaged. A variety of surgical approaches are available depending on the location of the tumor within the parotid but their description not within the scope of this paper. A painful parotid containing a tumor mass may be from *sialadenitis* secondary to an obstructing tumor mass. In such instances, sialography can be of assistance in

demonstrating both processes. Facial paralysis accompanying a painless parotid mass favors a malignancy and usually with an unfavorable prognosis, yet such patients are not without hope for cure following radical parotidectomy. A painful parotid mass may mean suppurative *parotitis*. This is more common in the bed-ridden, post-operative patient who may be dehydrated, elderly, and with poor oral hygiene. Pus may exude from Stenson's duct. This pus should be cultured and tested for antibiotic sensitivity. Oral hygiene and hydration should be improved, local heat applied, and a broad spectrum antibiotic begun even before cultures and sensitivities have been completed. Tumor masses in this area which are not parotid, should particularly alert the clinician to look for a naso-pharyngeal primary. Sometimes such patients may complain of deafness secondary to Eustachian tube blockage by tumor at the internal auditory meatus. They may also have a hitherto unexplained epistaxis.

Branchiogenic fistula may occur at any age and extend from the supra-auricular region to the sternal notch. They may have an external and pharyngeal opening or only one or the other. The external opening is most frequently in the lower one-third of the neck and the usual symptom is mucous discharge, but an adequate internal opening may allow for escape of some ingested fluids. The therapy is surgical excision through several transverse incisions as the dissection proceeds proximally. The injection of sclerosing solutions to obliterate the tract has little merit today. Since the full extent of the fistulous tract may not be known, pre-operative x-ray of the tract with injection into it of radio-opaque dye may be of benefit. Even if it appears to be of limited extent clinically the surgeon must nevertheless be prepared to pursue it to the larynx if necessary.

Methylene blue injection of the tract at the time of surgery usually results in dye leakage and more confusion than ever. However, a metal probe in the tract may be of distinct aid during the time of dissection. *Branchiogenic sinus* really is a persistent opening following incision and drainage of a cyst which is discussed below. The therapy is similar as with branchiogenic fistula.

Branchiogenic cysts are usually painless, feel smooth, and are quite tense in the upper neck, but may be so soft lower down as to be confused with a *lipoma*. They frequently manifest them-

selves following an upper respiratory infection, although such a clinical development may make obvious something long since present. As a therapeutic measure, aspiration has little to offer except to invite infection. The injection of sclerosing solutions may incite a severe chemical inflammation. Simple incision results in a fistula. Since the effects of x-ray are both permanent and progressive, and the patients afflicted usually are young, and the use of such therapy precludes exact diagnosis, it should not be used to treat branchiogenic cysts. Though the risk of malignancy is minimal, it adds its increment on the side of surgical extirpation as the therapy of choice. This can be done through an incision along the anterior border of the sternocleidomastoid muscle. No cyst wall should be left behind and spillage of contents during surgery is of no consequence.

Thyroid Abnormalities of this organ can assume several physical forms. *Diffuse non-toxic goiter* in an euthyroid patient involves the entire gland and its appearance is classical. The risk of malignancy is so minimal as not to play a role in the deliberations on the type of therapy to be instituted. They are uncommon in this country because of the widespread prophylactic use of iodized salt. When detected early, the administration of thyroid may cause a regression. However late in the disease, such regression is uncommon. Symptoms of esophageal or tracheal compression or deviation or concern about appearance, are the main indications for therapy. *Diffuse toxic goiter* is best treated initially with anti-thyroid drugs. This requires a cooperative patient who is willing to take medication faithfully for a number of months. If the patient cannot take medicines or there is no response to them or there is a recurrence when treatment is discontinued I^{131} or surgery should be considered. I^{131} has sufficient advantages over surgery that it is displacing surgery as the favored therapy. Because of the unknown long range risks of irradiation, such therapy in the young is probably ill-advised. Forty years of age appears a reasonable one under which surgery rather than I^{131} should be used. Very large glands and diffuse toxic goiter in pregnancy is best treated surgically. It is preferable to treat *nodular toxic goiter* surgically unless the operative risk is prohibitive. In such instances I^{131} can be used although it is less effective than with diffuse toxic goiter. *Non-*

toxic thyroid nodules whether solitary or multiple, normally are in clinical situations which makes investigation wise. Although surgery is not a panacea, it is practically the only method whereby cures for cancer are effected. Radiation and suppressive therapy rarely accomplish this. It would be unrealistic to state that all nodularities should be explored since many people have nodularities which have been present and unchanged for decades. Thyroid scanning is valuable in that rarely will cancer be present in a hyperfunctioning nodule. Also, cancerous thyroids usually have a lower uptake of iodine than normal thyroid. Since only one-third of nodules are hyperfunctional, the decision then remains as to which "cold" nodules may contain cancer. In the greatest number of such nodules, surgical exploration will be advisable, but there are a number where the indications for exploration are not clear or mandatory, yet the risk of not knowing the pathologic diagnosis in question may be excessive. I feel that some of the temerity toward surgery has been the fear and realization that radical neck section as a routine procedure for thyroid cancer might be excessive surgery. If one remembers that the classical radical neck dissection was not devised for thyroid cancer and its modes of spread, such skepticism and anxiety are understandable. For most papillary cancers, radical neck dissection is not warranted. Hemithyroidectomy and homolateral lymphadenectomy without sacrifice of the jugular vein and sternocleidomastoid muscle appears to be a realistic approach. With gross nodularities, division of the sternocleidomastoid muscle at its insertion allows for good exposure and dissection. Obviously muscle and vein should be sacrificed if tumor is inextricably involved. Strap muscles can be removed with little concern about appearance and function. The border of the trapezius muscle and the submaxillary triangle are infrequently involved unless excessive lymph node metastases are present in the neck. The other types of cancer are less frequently encountered but are more virulent and the surgery should be appropriately aggressive. I¹³¹ and roentgen therapy, as well as suppressive therapy, are rarely curative and must therefore assume their proper role for recurrent, nonresectable, residual or metastatic cancer.

Cystic hygromas occur primarily in childhood and are found mostly in the neck. They vary

considerably in their growth rate, symptomatology and size. They are fluctuant and often may be confused with lipomas if their growth is sluggish. Surgery is the preferred therapy. If they are in an infant and the increase in size appears to be commensurate with the growth rate of the child, it may be permissible to defer surgery until the patient has grown older. This is done at the risk that it might in the meantime become infected with possibly serious consequences. Generally expectant therapy, aspiration, injection of sclerosing solutions as well as x-ray therapy are not as satisfactory as surgery. All ramifications should be removed for success. Therefore, the surgeon must beware of thinking a cystic hygroma which appears minimal clinically, will be so surgically.

Thyroglossal duct cysts may occur slightly to one side of the midline in approximately 25% of cases. For this reason midline lesions should strongly suggest thyroglossal duct cysts, but lesions to the left or right of it should still bring this diagnosis to mind. Most occur before 10 years of age, vary greatly in size, but average 2 to 3 cms. in diameter. They are smooth, spherical, moderately firm, move with deglutition, and are translucent to light. They may have to be differentiated from other midline affections such as *sebaceous cysts* which are attached to the skin. With nodularities of the *pyramidal lobe* a strip of thyroid below the nodule may help in the differential diagnosis. I have noticed that midline *submental nodes* are more anteriorly placed. Lymph nodes on the crico-thyroid appear more deeply placed. The above differential diagnoses range from the benign to those which may signal a serious disease. Appropriate consideration of the above may avoid the possibility of even these infrequent diagnoses being missed or confusing the issue. *Thyroglossal duct sinuses* are less common and usually result from lancing of a cyst. Therapy is excision which can be initiated through a transverse incision. In anticipation of a proximal dissection, the incision can probably be made slightly cephalad to the presenting portion of the mass. The chances of a secondary incision further up are thus reduced. The tract may traverse the hyoid bone. A very short segment of the bone has to be removed for proper thoroughness of excision. The lack of such a move is probably the most common cause of recurrence. The dissection should then proceed

with even greater care to avoid tearing the tract which at this point usually becomes filamentous.

Tumors of the *carotid body* occur uncommonly but must be seriously considered in evaluating tumors about the carotid bifurcation. They are usually of long standing with a slow, progressive growth. This is an important point in the differential diagnosis. They are usually smooth and nodular, and transmit pulsation from underlying vessels. They can be differentiated from an underlying *carotid artery aneurysm* in this area by disappearance of the mass with arterial compression proximal to the mass. Characteristically carotid body tumors move laterally but not up and down. Carotid body tumors grow slowly and with an appreciable malignant transformation but they rarely metastasize. Such a "benign" course makes it necessary that the most deliberate thought be given to their therapy. The rich vascular supply and the difficult extirpation makes it necessary that the reasons for the excision be cogent. Obviously, early excision is the easiest and most desirable.

Malignant Melanoma in the neck area is ideally situated for the surgeon to practice removal of the primary, intervening lymphatics, and underlying lymph nodes in continuity as an en bloc procedure. Such practice has resulted in this area of involvement enjoying one of the highest cures for malignant melanoma. Of course possible earlier detection, earlier surgery, and other unknown factors may also be responsible for the more favorable outcome of lesions in this area. This is an area of the body where fear of disfigurement tempts the clinician to excise lesions in a manner suggesting that cosmetic appearance afterwards is uppermost in his mind. Yet this is one area where a realistic approach will show that aggressive surgery is ultimately the most rewarding. X-ray therapy plays no role in the treatment of malignant melanomas in this area.

Neck Tumors as Part of a Generalized Disease

Malignant lymphomas usually begin as nontender, elastic, movable nodularities which later become a conglomerate mass. The left side of the neck is involved most frequently and usually in the posterior triangle or supra-clavicular area. The history and the detection of involvement of other nodal areas is of great assistance in the diagnosis. The therapy is overwhelmingly by x-ray

or with radiomimetic agents. Nevertheless, it is now recognized that unilocal Hodgkin's disease in the absence of systemic involvement, manifested as fever, eosinophilia or generalized pruritis, can be treated surgically with "minimal" post-operative x-ray therapy. The results are at least equal to those of x-ray without the undesirable late effects of x-ray. Malignant lymphomas may have to be differentiated from *tuberculous lymphadenitis* which is a disease of childhood. Such nodes are initially nontender, firm and discrete but later become matted with fixation and redness of the overlying skin. Even later the skin becomes necrotic to result in a chronically draining sinus—a natural course rare with lymphomas. As usual, a complete history and physical examination are important for intelligent evaluation. Anti-tuberculous therapy has displaced surgery and certainly x-ray therapy as the favored method of treating these patients. If the diagnosis is in doubt, excisional surgery can serve the purposes of both diagnosis and eradication. If the diagnosis before surgery is suspected, anti-tubercular therapy should be given pre-operatively and if confirmed, the therapy should be continued for a year afterward. It is difficult to delineate clearly the role of surgery since some use it to excise early involvement, others reserve it for impending sinus formation, and others for the fibrotic residual to medical therapy. In all instances where surgery is used anti-tuberculous therapy is administered concomitantly. There is no haste for surgery and by and large its use is less frequently indicated.

Metastatic Lesions

Metastatic lesions from primary below the clavicle usually appear in the lower neck. Common primary cancers are to be found in the breast, lung and stomach as well as a host of other locations. It is obvious that in the evaluation of a neck mass, the search for a possible primary, logically may have to proceed below the clavicle. These lesions are firm to hard, mostly lobulated, and with moderate fixation. Surgery is frequently necessary for diagnosis but involvement of this area precludes cure but not necessarily palliation. Metastasis from oral-pharyngeal or facial primaries usually appear in the upper neck and less frequently in the lower neck. Naso-pharyngeal and tonsillar lesions and those at the base of the tongue usually metastasize in the vicinity of the

angle of the mandible and carotid bifurcation. The more anterior tongue and lateral floor of mouth lesions appear in the submaxillary triangle or along the anterior jugular chain. There is some divergence of opinion on the recommended management of the primary lesion in such clinical situations. Generally, the more posterior the lesion, the more radiosensitive it is and the more difficult the surgery. Accordingly, x-ray therapy is more frequently advisable and used. The contrary is true for the more anteriorly placed lesions and those in close proximity to bone. To a great degree the decision as to whether to use x-ray or surgery on any particular lesion depends on the skill and experience of the therapist available in a particular community. Except for limited involvement, x-ray therapy plays a minimal role in the curative therapy of squamous cell carcinoma which has metastasized to cervical lymph nodes. Radical surgery of the involved node area is the preferred therapy provided the primary is controlled or controllable and there are no distant metastases. Laryngeal cancer with cervical lymph node metastases are best treated with laryngectomy and homolateral radical neck dissection in continuity.

Incisions

At the time of surgery the skin preparation should not include scrubbing if there is a presumption of malignancy. Undoubtedly such scrubbing increases the risk of cancer cell emboli-

zation. It is of course true that the patient's daily washing tasks may do likewise, but this we do not know. However, we do know that embolic cancer cells have a better chance to "take" at the time of stress—in this instance surgery. For what logic and benefit there may be in such a practice, we simply paint the skin with an appropriate agent in patients to be operated on for a presumed malignant lesion.

Poorly thought out placement of an incision can hamper the finesse with which subsequent surgery can be executed. The person who first investigates a neck mass should always keep in mind the possibility of further surgery and how his initial maneuvers will fit into the total operative management. In many instances, the diagnosis of a benign lesion is obvious, in which case cosmetic considerations assume importance. In the presence of a malignant diagnosis, the appearance of a patient post-operatively should not influence the surgeon to perform an operation short of ideal from the standpoint of cancer eradication.

If there is the possibility that the incision for biopsy will be followed by radical curative surgery, then such an incision should be confined to a minimum consistent with obtaining adequate tissue. It must be assumed that the incision will be contaminated with cancer cells and therefore during the subsequent curative surgery, it must be excised without being entered. Thoughtless dissection during biopsy can contaminate the field excessively if not irreparably.

EVALUATION OF CURRENTLY EMPLOYED LABORATORY PROCEDURES FOR GLYCOSURIA: A CLINICAL STUDY

Austin H. Doren, M.D.*

A number of different techniques have become available commercially for the detection of glucose in the urine. A general trend has been toward an increased sensitivity of the test, however with an increased sensitivity there also occurs a certain liability. Confusion has occurred as a result of the ultra sensitive glucose oxidase reaction. The purpose of this report is to illustrate the usefulness of each test and to point out certain limitations in the glucose oxidase reaction which have not received adequate attention.

Method

THE APPARENT INCONGRUITY between the blood glucose (Folin-Wu Method), the routine methods for glycosuria, and the "positive" glycosuria using the glucose oxidase in the patient in this study was thought sufficient justification to continue studies on the relative sensitivities of currently employed procedures for urinary glucose. The importance of range of sensitivity of the urinary glucose test is obvious because the observer must be aware as to what point a "positive" glycosuria becomes of clinical significance and what method of determination was employed.

The sensitivity of currently used tests was compared against a known standard glucose solution. The sensitivity of these tests against a known per cent solution of glucose is shown in Table 1.

The phenylhydrazine reaction (1) was used in this study principally for the purpose of glucose identification. The reaction is specific for the reducing sugars and will not form the characteristic osazone crystals with other reducing substances usually found in urine. This reaction, when applied to urine, will readily detect a concentration of glucose in the range of 0.25 percent (2). When the concentration of glucose is much less in the urine the formation of identifiable crystals of glucosazone may not be detectable when this is applied directly to the urine specimen.

The addition of the glucose oxidase reaction to the clinical laboratory armamentarium has been relatively recent and provides a reaction

that is apparently specific for glucose in the urine. The performance of this particular reaction will give a specific reaction for glucose thus eliminating the fermentation test, phenylhydrazine, et cetera, in the identification of the reducing substances in the urine (3). The specificity of this reaction goes unquestioned, however the range of sensitivity for routine clinical application must be determined as may be seen from Table 2. The extreme sensitivity of the glucose oxidase reaction has many implications when applied to routine clinical use and the identification of miniscule amounts of urinary glucose without knowledge of the glomerular filtration ratio and the tubular reabsorption capacity (Tmg) is of questionable clinical significance. The routine application of this procedure may give a color change in the range of 1/25 percent (4) which, as pointed out previously, may be open to question as to its clinical significance.

In this study the urine samples, since there was familial association, were later examined using the Galatest (Denco)† which employs a bismuth salt rather than a copper salt. The usefulness of this was to eliminate the possibility of an alkapt-
tonuria as homogenetic acid will reduce copper salts but not alkaline bismuth solutions (Nylander's reagent).

Results

The results of the studies are shown in Tables 1 and 2.

TABLE 1.

Known glucose standard %	Combistix ¹	Clinitest ¹	Benedict's	Benedict's (cooled)
0.125%	dark	1 plus	s. trace	trace
0.0625%	dark	trace	neg.	s. trace
0.031%	med.	neg.	neg.	neg.
0.015%	light	neg.	neg.	neg.
0.007%	light to neg.	neg.	neg.	neg.

TABLE 2.

Urine sample	Combistix ¹	Benedict's	Clinitest ¹	Phenylhydrazine	Testape ²	Glucose tolerance
IB	med-dark	neg.	neg.	neg.	1/10%	normal
RB (fa)	med-dark	neg.	neg.	neg.	1/10%	normal
HB (bro)	dark	s. trace	neg.	neg.	1/10%	not done

¹Combistix and Clinitest, manufactured by Ames Co.

²Testape, manufactured by Eli Lilly Co. (a glucose oxidase reaction)

Discussion

The patient exhibited a "medium" to "dark" glycosuria when using a prepared "dip-read

*Smackover, Ark.
†Galatest, manufactured by Denver Chemical Mfg. Co., New York, N.Y.

stick".* This particular "stick" employs a glucose oxidase chromagen catalyst reaction which ranges from a pink (negative) through "light", "medium," and "dark" purple (positive). The glucose oxidase reaction apparently is a very specific one and, at this writing no "false positives" have been reported (4). The patient had exhibited, on numerous occasions, a "medium" to "dark" reaction and thus the usual glucose tolerance tests (one dose) were carried out in the laboratory. The "fasting" blood glucose was found to range between 100 to 110 mgm percent (Folin-Wu), and the glucose tolerance curves were found to be somewhat "flat" (100 to 138 to 135 mgm percent), all urine samples giving a "medium" to "dark" urinary glucose using the glucose oxidase method. At no time have the patients in question exhibited a hyperglycemia. See Table 2.

Several methods are available to the clinical laboratory for the routine examination of the urine for glucose (glycosuria). Most of the available methods have an acceptable specificity for glucose, however the sensitivity range of the procedure is of primary importance.

The normal glycosuria is variable, being given as 0.002 to 0.01 percent (5). More recently it has been shown that normal, healthy subjects excrete between 72 mgm to 200 mgm of glucose in the urine daily and occasionally this amount may be greater (6). That glucose does appear in the urine of normal, healthy individuals is well established, and the fact that fatigue, tension, excitement and pregnancy does influence urinary glucose levels must be considered when applying these routine tests.

In addition to the range of sensitivity the currently employed glucose oxidase reaction for glycosuria, time is of the essence. This is apparently a very critical factor and even in extremely low glucose concentration a few seconds delay in reading the result may change the observer's opinion rather markedly. All of the routine methods depend on color changes therefore it is conceivable that a wide divergence of results could be obtained in different clinical laboratories, depending on the technician and, not on the technique. The significance of this observation may be more apparent if one may think of the many instances a diabetic is studied under controlled conditions in the hospital for regulation using blood glucose studies and a copper reduction reaction for urinary glucose and then is released,

under therapy, using a glucose oxidase test at home with its extreme range of sensitivity. It is conceivable following the "positive" reaction of the glucose oxidase reaction, the patient could reduce the blood glucose to a point of hypoglycemic shock and still continue to get a "positive" urinary test for glucose. This channel of thought is based only on the patients available for this study. The point is to clarify the necessity of correlating and individualizing the blood glucose studies, the laboratory method for glycosuria, the method employed in the physician's office, and that recommended to the patient for home use. This is obvious when the ranges of sensitivity of the routine tests are remembered.

Based on this study it appears the most practical clinical approach to the problem is that the method of choice to use, routinely in the clinical laboratory and by the out-patient, is a procedure giving the lowest "positive" in the range of approximately 0.05 to 0.1 percent on a random urine specimen. The routine use of the copper reduction reaction (i.e. Benedict's and Clinitest) may give "false positives" with other urinary reducing substances which may be of clinical significance, however, due to the specificity of the glucose oxidase reaction these would not be elicited by the glucose oxidase method.

The now available glucose oxidase reactions are extremely sensitive and specific and therefore the reporting of glucose in the urine by this method should be reported as merely present or absent. The finding of glycosuria by the usual methods, (reduction of copper salts) should be authenticated by subjecting it to a glucose oxidase method for confirmation of the urinary reducing substance.

In the final analysis the glucose oxidase reactions on urine, as presently reported, are far too sensitive for routine clinical laboratory and patient use, and should be reserved for identification of urinary glucose to eliminate the other melliturias. When made aware of the range of sensitivity of the various methods the necessity of designating the method of examination when reporting becomes more apparent. The ultimate significance of glycosuria by any method, continues to remain with the "fasting" blood glucose level and the glucose tolerance test.

Summary

1. Confusion has occurred as to the clinical significance of a "positive" glycosuria using the

ultra sensitive glucose oxidase reaction.

2. The routine clinical tests for the identification of glycosuria by several methods has been studied and the range of sensitivity reported.

3. The glucose oxidase reaction is a highly sensitive test and because of its specificity eliminates the identification of other clinically significant urinary reducing agents. The "false positives" that occur using a copper reduction reaction may well prove beneficial to the patient by alerting the physician to the presence of urinary reducing agents other than glucose.

4. The value of any routine clinical laboratory examination depends on knowledgeable understanding of the reactions involved and the *clinical* significance of the results.

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THE MD'S RESPONSIBILITY TO HIS STATE MEETING*

PECULIAR THINGS ARE HAPPENING in "the house of medicine" today. Bureaucrats in Washington are using IBM techniques to determine what John Jones, M. D. in Spotted Horse can charge for every service he renders patients served, where government funds are wholly or partially employed. Hospitals in many areas are assuming the role of community physician and creating a public image that the fount of medical knowledge and authority rests on Hill-Burton foundations rather than in the office of the individual family physician. And with this ominous change in the structure of medical practice comes an equal and disturbing decline in the role of the county society and the state medical meeting in the important area of postgraduate medical education.

Why is this so, and need it continue to a point where the county society and the state medical meeting join the dodo and the carrier pigeon in oblivion?

At the turn of the century the county medical society was the "doctors' fraternity," and the annual state meeting was an occasion eagerly anticipating as a source of professional knowledge and an opportunity to discuss cases and professional problems with former teachers and colleagues in other cities. Those were the days when professional exchange of experience and avid attendance at lectures provided the best avenue for continued medical education. Medical movies were rarely available, TV wasn't even imagined outside of a few imaginative science writers of the Jules Verne type, and even access to literature was generally confined to the larger communities and those few high and mighty "giants" of the profession who were specialists in the art of surgery.

What a change today! The busy practitioner of 1962 is bombarded with literature; he is swamped with elaborate brochures on a multiplicity of medications and professional aids; he is interrupted in the care of patients by earnest and persistent detail men; his hospital staff demands his presence at frequent meetings; his specialty group or GP unit seeks his attendance at scientific meetings (with bait of credit, or threat of expulsion!) . . . in short, the physician of today is either a nomad from his practice, or he throws

up his hands and eliminates all meetings other than three or four each year.

In such a situation many state medical meetings are finding themselves among the "also rans." They can provide little of the glamour or overwhelming program offerings of an A.M.A. meeting. Nor can they successfully compete with the social pull of the resort conferences (with a chance for a bit of gambling and night-clubbing within the prescribed rules of the Internal Revenue Department!)

And yet, a state medical meeting has something of *special* value to the practitioner which is worth preserving. But it cannot survive if an increasing number of physicians by-pass it and restrict their attendance to regional or national meetings of their specialty or area of general practice.

A state meeting . . . YOUR state meeting . . . is the finest "grass roots" medical meeting which can be developed. It's big enough to provide a stimulating program with out-of-state speakers, and to encourage the development and presentation of good scientific exhibits from local hospital staffs or clinic groups. At the same time it's small enough to provide renewed fellowship with former classmates and faculty members to a degree which is lacking in any national or even regional conference.

Why then, is the average state meeting suffering a severe case of attendance malnutrition? In some instances poor program planning may be the answer. Often there is a lack of imagination in providing new modes of presentation. Panels, demonstrations, movies, TV, "wet clinics" . . . all are an important part of a modern-day medical convention, and the program committee which fails to utilize these teaching devices is issuing a blanket invitation to stay away from the meeting itself.

Even the technical exhibits at a well-run medical meeting have educational benefits to be considered. True, a certain proportion of physicians regard the technical exhibits as "commercialization" of the scientific program, and hesitate to taint themselves by stopping at any of the booths. However, there are many more physicians from smaller communities or in rural practice who welcome the opportunity to see what new drugs and appliances are being offered, without the

*Paper presented by Medical Society Executives Association—711 N. Lake Ave., Sioux Falls, S.D.

pressure of a full waiting room of patients.

No medical meeting exhibit should be continued solely on the basis of financial support of the scientific program itself. No one should ask the physician to "sell his soul," just to support a commercial exhibit. The day of the "hard sell" among exhibitors at medical meetings is a thing of the past. A few companies still emphasize direct sales at medical conferences, and their representatives are a bit on the over-eager side. But most of the ethical houses conduct their physician contacts in keeping with the professional standards of those in attendance.

The educational aspects of the modern-day medical exhibit should not be overlooked or derided by the purist MD who scornfully brands all displays as "technical prostitution." He is possibly unaware of the fact that most of the scientific exhibits he admires and studies are largely supported by funds from the commercial houses. He accepts the lectures and demonstrations on the scientific program itself with little recognition that without exhibit support he would be asked to pay a registration fee of \$25 to \$50.

Those who view medical meetings, from the hospital staff level right up to the summer meet-

ing of the A.M.A., are concerned that in some areas physicians are failing to appreciate the importance and unique qualities of their state meeting. By their failure to actively support their meeting on a state level they are threatening the demise of a meeting which has much to offer in terms of close professional fellowship and keeping the quality of medical practice in the immediate area alert to new developments as they relate to individual practice.

The public is prone to criticize the medical profession for its alleged major concern with the financial returns of their practice. Attendance at medical meetings represents a loss of income which is often overlooked by patients. It is important that annually your patients either read this legend on your office door: "To My Patients: I am Attending My State Medical Meeting so I Can Better Serve You. Please call Doctor..... in my Absence," or your office girl should be asked to explain your absence in a similar manner.

Your state meeting is worthy of your support . . . and it can only remain a vital factor in the life of your state if you attend and take an active role in all aspects of the meeting.

WHAT'S NEW?



WHAT'S NEW IN PSYCHIATRY

Vale Harrison, M.D.*

THERE IS ONE PARTICULAR NEW method of trying to influence people toward a better adjustment. The name most commonly given to this new method is *family therapy*. Therapy here refers to all possible forms of treatment. It may consist solely of psychotherapy, or it may include electro-shock and/or drug therapy. The really new idea is that the *family* is considered the unit to be treated, rather than any one individual in it. This means that whether the other members of the family think of themselves as being sick or well, they are brought into the treatment situation and the relationships between them and the more disturbed member of the family unit are directly observed and explored. It is not always easy to get the "non-sick" members of the family into the consultation room. However, in the majority of cases, especially involving spouses, the "non-sick" spouse is quick to at least pay lip service to the idea that he may have contributed in some way to the sickness of the other person.

Much of the efficacy of this form of treatment is that members of the family can be observed interacting with one another. In the past, psychiatrists as a rule have not availed themselves of this opportunity. They have been too concerned that they might vitiate the sacrosanct therapist-patient relationship. Many times psychiatrists would refuse to even talk to other members of the family, for fear that the person being treated would be disturbed by the possibility of his giving away the patient's "secrets." However, in practice, these fears have not materialized to the point where they outweigh the advantages of direct observation of interaction between family

members. In practice, these "secrets" often turn out to be not secrets at all, but merely problems and situations that are not openly talked about. Family members, for instance, would shield children from discussion involving problems of which they are actually all too aware, and which they are relieved to discuss openly.

Over a period of years, the idea of *family therapy* was developed simultaneously by several different workers. That few of its members have denounced *family therapy* is indicative of the fact that the profession was ready for this new idea. It is in fact likely that most psychiatrists have made observations in their own practices which would suggest the use of this form of treatment. For example, we see a patient lose his symptoms and function better just by being taken out of the family unit, only to relapse on his return to the family. Another observation that has given impetus to thinking in terms of sick families is the situation in which the more disturbed member is treated individually and improves; then another member of the family becomes sick. One writer in this field has said that it appears that some families are psychodynamically organized so that at least one of their members is required to be sick. Perhaps this truth is illustrated when we speak of someone being the "black sheep of the family."

This writer has found the *family therapy* approach to be particularly useful in treating disturbed children and in the treatment of psychotic individuals. In these cases, the "non-sick" members' contribution to the problem is, many times, much easier to identify than it is with other types

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of cases. The treatment of marital discord lends itself to seeing both partners in the same interview session. Marriage counsellors have long recognized the value of working with both husband and wife jointly.

Family therapy does not supplant individual therapy; and even in the course of *family therapy* there may be some sessions with single individuals. Also, the therapist will at times see various members of the family in different combinations. The form these combinations take during the course

of treatment is determined by the particular conflicts that have been revealed in group sessions. Some individuals can be excluded almost at once as not being involved in any of the major conflicts present in the family. More commonly, however, each conflict is woven from the difficulties of the various members, making family therapy not only an easier method of treatment, but incidentally a more rapid and less expensive way in which to influence the family as a whole, as well as its individual members, to a better adjustment.

TEACHING SEMINAR

Department of Medicine
University of Arkansas Medical Center
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WILLFUL INJURY IN CHILDHOOD

A Distinct Syndrome

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THE RESPONSIBILITY FOR PROTECTING children from pain and suffering has been increasingly emphasized by our society for many years.

Recognition of the role of the child in society as a person with distinct rights has been guided by legal and religious thinking, and has evolved from the feudal attitude that the child was a chattel of the parents. Recognition of injury to children resulting from willful abuse has become a problem of legal, moral and sociological importance which may touch any physician who cares for children.

Recently the medical profession has taken the leadership in the fight against the abuse of children. Several recent journal articles and editorials have been published concerned with the willfully or maliciously injured child. The name "battered-child syndrome" has been coined to describe the clinical picture of the willfully or maliciously injured child.

This apparently distinct syndrome is not necessarily limited to the lower socio-economic levels of society. The person abusing the child is most frequently one of the parents, although grandparents, aunts, uncles or siblings occasionally cause the injuries. Foster parents have been in-

criminated as the assailant but with no increased frequency when compared with natural parents.

The reason for the assailant's violent, irrational action frequently stems from an underlying psychological abnormality of a serious nature.

While no age group of children is spared, the younger child or infant is most frequently the recipient of the most serious injury. Two cases taken from the records of the University of Arkansas Medical Center are offered as examples of the "battered-child" syndrome.

Case No. 1

A 7 month old white female was brought to the University Hospital Emergency Room by the young mother and father and the grandmother with a history compatible with pertussis. In addition, they related that for 2 to 3 days, movement of the right lower leg produced pain and some swelling had appeared.

Examination of the child supported the diagnosis of pertussis and x-rays of the right leg revealed oblique fracture of the right tibia in the middle $\frac{1}{3}$ with mild displacement.

The grandmother insisted that the child have x-rays of the skull, explaining that she had noticed a bump on the back of the head. Skull x-rays were made and revealed three long linear skull fractures without depression. The family, including the parents and grandparent, was quite agitated and anxious but questioning failed to reveal any explanation for the fractures.

The child was treated with casting of the leg

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and observation for intracranial bleeding. After consultation with juvenile authorities was obtained, the child was discharged to the parents.

Case No. 2

An 11 month old colored female was admitted with a 2 week history of apparent pain on movement of the legs and swelling of the left thigh. The child was noted by the mother to prefer to lie quietly in a frog-leg position.



Examination revealed mild anemia. The x-rays of extremities revealed marked calcification about the left hip joint with subperiosteal elevation and calcification along the shaft of the femurs. There were multiple small fractures of the distal



femoral metaphyses and the proximal tibial metaphyses. There was also a fracture of the proximal radial metaphysis on the right. Skull films revealed a linear fracture below the lambdoid suture on the left.

The mother and father worked in the fields as farm hands. There were 3 siblings: 4, 5 and 6 years of age, and 1 sibling dead at 2 months of diarrhea.

No assailant was discovered. The older children played with this child without supervision while the parents worked in the field.

The child recovered without incident.

A recent report¹ of the syndrome which offers considerable information including statistics from several sources prompted the authors to attempt to examine the experiences of Arkansas physicians with the "battered-child" syndrome. While the results are not entirely conclusive of the total experience, significant information was obtained from 71 practitioners who answered a questionnaire designed to yield some knowledge about the type of assault, the seriousness of the resulting injury, the relation of the assailant to the injured child and the age of the child most frequently assaulted.

The following statements summarize the information obtained from the questionnaire.

Sixty-five per cent of the physicians reported having seen the syndrome at some time in their practice. Most of these physicians had recognized the syndrome only 2-3 times in their entire practice, however, one physician recognized the syndrome on the average of 2-3 times yearly in his practice. 24% of physicians who had recognized

the syndrome reported at least one case in which a fatal outcome had been the result.

The assailant was reported to have been one of the parents in 76% of cases, while siblings were responsible for 24% of incidents. While previous reports of the "battered-child" syndrome have not considered assault by siblings, most people are aware that injury of small children or infants by older siblings does occur, particularly under the guise of sibling-rivalry.

Fathers and mothers were incriminated in equal numbers by the physicians reporting, doubtless illustrating the fact that in spite of maternal instinct, mothers are frequently aroused to considerable hostility toward their children.

The most frequently injured age group in the Arkansas physicians' experience was the child from 6 months to 3 years of age. This group contributed 60% of recognized incidents. However, no age group was free of assault and an occasional child in the early teens was seriously injured.

The most frequent injury sustained was unusual bruising, but children of all ages received fractures of long bones and 8 instances of skull fracture were reported, with 5 of these being in children ages 1-5 years. Burns were more frequent in the group under 1 year than at any other age.

Bizarre types of injury are frequently seen but are not reported in this presentation.

The psychiatric state of the assailant was reported as being frankly psychotic in only 18% of cases while 53% of the assailants were felt to exhibit immaturity of personality or a serious character disorder. Only 2 instances of the child's misbehavior as a cause of the assault were reported. The mentally retarded parent was infrequently (3/45) the assailant.

Although this brief resume of physicians' experience is based on a modest number reporting, there is considerable information obtained. From this and similar studies it can be estimated that the assault of children by parents must occur with considerable frequency, but is difficult to recognize unless the most florid injuries are present or the physician is highly suspicious of willful trauma. The injury most frequently produced is excessive bruising from one or repeated blows. Fractures are manifest by pseudoparalysis, pain on motion or frank deformity. Brain injury is non-specific in its characteristics, however, the explanation offered is frequently that

the child fell from the bed or high chair by accident.

The disparity between the amount of injury and the explanation offered is frequently the most helpful clue to the malicious nature of the assault. Only the most careful evaluation of children with bizarre or unusual injuries will bring to light the true nature of the assault and even if this is forthcoming, the assailant may remain hidden for the obvious reason that only the most frankly psychotic person is likely to boast about assaulting a child.

Radiologic Evidence

The roentgenographic manifestations of multiple fractures in children following malicious injury are fairly self explanatory and resemble in some measure fractures sustained by children due to accidental causes. Some differences do present in a child with multiple traumatic episodes which should alert observers to recognition of these children. First, evidences of chronic trauma should be sought. These are findings such as calcifying hematomas, evidences of periosteal reaction in several bones, with or without frank fracture, that is to say, multiple areas of traumatic bone change. If a child is suspected of being the victim of such trauma, films of the entire skeleton should be made to evaluate all bones which may be harboring silent fractures.

In the first case a clinically evident fracture of the right leg was demonstrated on films. Less evident clinically was the severe trauma to the skull. Skull films revealed multiple severe fractures of the linear type, apparently asymptomatic.

In the second case, the only clinically evident abnormality was swelling of the left leg. Full roentgenographic study revealed multiple fractures not only in the left leg but also the right arm and fracture of the skull.

In general, when x-rays of children show several areas of involvement of one extremity or when chronic changes of bone trauma are present, the child should be x-rayed completely to rule out fractures which may not be clinically evident. If other fractures are present and there is no history of accidental trauma from obvious causes, a strong case can be made for the abused child.

Psychiatric Aspects

What kind of parent injures his child? If we consider the problem in its broadest sense, every parent has lost his temper at times, and we can

all see that emotional responses in the heat of intense fear and anxiety tend to be ill-considered and excessive. The child is a most acute representation of the parent; a small mirror which reveals glaring and anxiety-provoking inadequacies at times, inadequacies which may be reacted to illogically. Everyone has less ego protection when he considers personal inadequacy and guilt, and profoundly less ego protection when the child represents the adults' problems. In other words, we can certainly identify with the problems of the parent because literally these problems are common to all of us. Where we encounter difficulty as physicians is in feeling that everyone has our system of values, and we usually operate as if a parent is really incapable of willfully harming a child. Physicians have a remarkably low index of suspicion regarding parental responsibilities for injury.

The parents who have injured their children can be placed in two general groups: The psychotic and the non-psychotic. In the first category, the schizophrenic parent who decompensates into psychosis may react directly to delusional ideas, and beat or starve the child in a very ritualistic manner, for example, to purify them in response to the demands of "voices", or may react in a psychotic panic to remove the child from imagined danger.² Here, as well as in psychotic depressions, the child is literally not differentiated from the parent's self and may be included in a suicide pact with the injury or murder truly a crime against the self.³

Clearly psychopathic parents (and those with closely related personality disorders) are generally recognized by their cold indifference to the child. However, these parents may be the most difficult of all groups to detect, for if they choose, they are most skillful in fabrication and pretense. They have no true love or emotional investment in the child, truly accept no mature responsibilities for the care of the child, are not burdened by conscience, are totally moved by expediency in handling a child, and because of this complex of reasons, are extremely deficient in impulse control and are most dangerous to the child.

The mentally retarded parent has impulse control deficiency, but we are more able to be understanding with this group. Borderline to mildly deficient women who are beautiful, tractable, and teachable may many times marry (the less adequately controlled types tend to be re-

moved from society) and do well with one child or two children, but are limited in response and unable to manage acute and chronic adversity.⁴ They tend to be quite impulsive and may use quite unfortunate methods in dealing with crying babies or babies who appear to misbehave.

We see that the basic defect in both the psychotic and the non-psychotic is the lack of mature, reality-based impulse control, and this is the constant finding in the immature, narcissistic parent who apparently accounts for the largest number of injuries. These parents seem to feel that their own needs have been poorly satisfied, their self-centeredness makes them poorly able to truly determine the rights of others consistently, and when they are distressed by their children's provocative behavior or crying, they may act out against the child in a very impulsive manner. The father, especially, with ego control lessened with ethanol, may try to quieten the crying child by tossing him into the air or by squeezing, etc ad infinitum. At times a parent may use the children as a representation of the other parent and abuse the child to punish the other parent. One wonders if this last group is not likely to increase in numbers because of social disorganization and a somewhat progressive breakdown of the family. Some of these immature and somewhat apathetic parents seem to make less than adequate plans for the care of the children, leaving them in the care of siblings who are prone to injure the younger children through neglect or ignorance or their own deficient control of aggressive impulse. Some parents are apparently forced by poverty to arrangements of child care which are quite unsatisfactory. Many times these parents leave the children in the care of siblings or with other children, who are by the simple fact of immaturity, inadequate to take care of their charges. To date, no study has been done on the siblings or children who have caused injury.

The rights of a child exist but are extremely hard to define. Historically, at least since World War I and much more prominently since World War II, the rights of parents have been markedly modified in practice, but there has been very little change in basic structure of the law. Apathy and parental guilt probably account for much of our extra-legal success in protecting children. If the parent has adequate legal council, it can be extremely difficult to protect the child who has been grossly mishandled. The rights of par-

ents of children who are victims of accidental injury must, of course, be protected at all costs, not only because of the psychic implications of false accusation, but the frank danger of malpractice action.

The juvenile court of the county of residence, a branch of the county court, has jurisdiction over the children found dependent and neglected—which definition includes willful or neglectful physical injury by a parent or guardian. When one finds that he has seen a child who has been willfully injured or neglected, the child welfare division can be contacted and they investigate and generally file a petition. The doctor is called upon to make a statement of findings which should be confined to clinical findings (not hearsay). A doctor is, of course, liable for any statements, but is generally on safe grounds when he confines himself to statements such as x-ray evidence and clinical findings and carefully remains non-judgementive. In other words, it is extremely important for the physician to remain in his role as physician and to remain out of the legal maneuvers of the case, save as expert witness. If the child should be permanently maimed or dies, it becomes a criminal case to be taken up by municipal or circuit court. The case which comes to criminal action has a much more well-defined legal course.

As we become more aware of the true numbers of battered children, we tend to feel overwhelmed as we realize the broad social pathology it indicates; however, we are then led to consider what we can do in alleviation, or better still, what is the method of prevention. While it is true that a number of the injuries may be impossible to prevent, we know that the larger number of the injuries are caused by immature people—or people forced to unsatisfactory arrangements of child care by poverty or simple lack of direction. A large number of the immature people are capable of response to treatment and thereby attaining a much more mature impulse control. Many of these people now do mature slowly and do much

better with subsequent children. Some areas—for example, Great Britain—have set up rehabilitation centers where the mothers are given training in child and household management, and casework therapy is directed to assisting emotional growth.⁵ They report a significant salvage of family units. Prevention of the entity by being able to supply guidance and assistance to young people even before they start their families is one of the logical answers, but we certainly need to strive for a mode of practice and diagnostic awareness which would permit us to recognize parental anxiety and immaturity and proneness to impulsive action and be able to offer guidance and assistance directly and prophylactically through care and reassurance. We need to facilitate in every way possible the development of broad community services such as Family Guidance Centers which could assist the young families when they need help.

The x-ray manifestations of the "battered-child" syndrome and a discussion of the x-ray diagnosis of this syndrome were prepared by Dr. M. R. Springer of the Department of Radiology, University of Arkansas Medical Center.

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ELECTROCARDIOGRAM



OF THE MONTH

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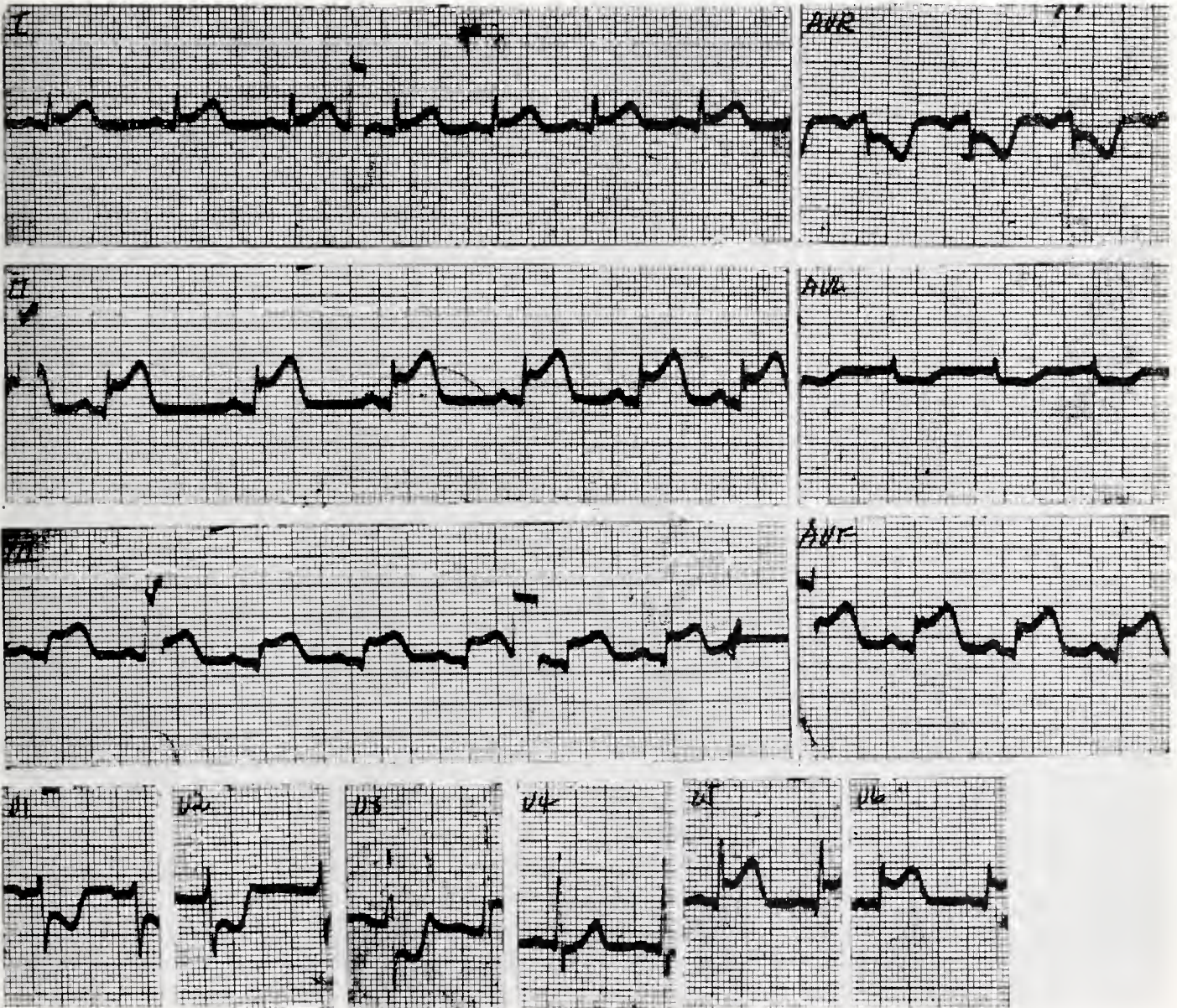
WHAT IS YOUR INTERPRETATION?

AGE: 41 SEX: M BUILD: MEDIUM BLOOD PRESSURE: 130/96

MEDICATION: None

HISTORY: Severe right sided chest pain radiating into neck.

Answer on Page 284



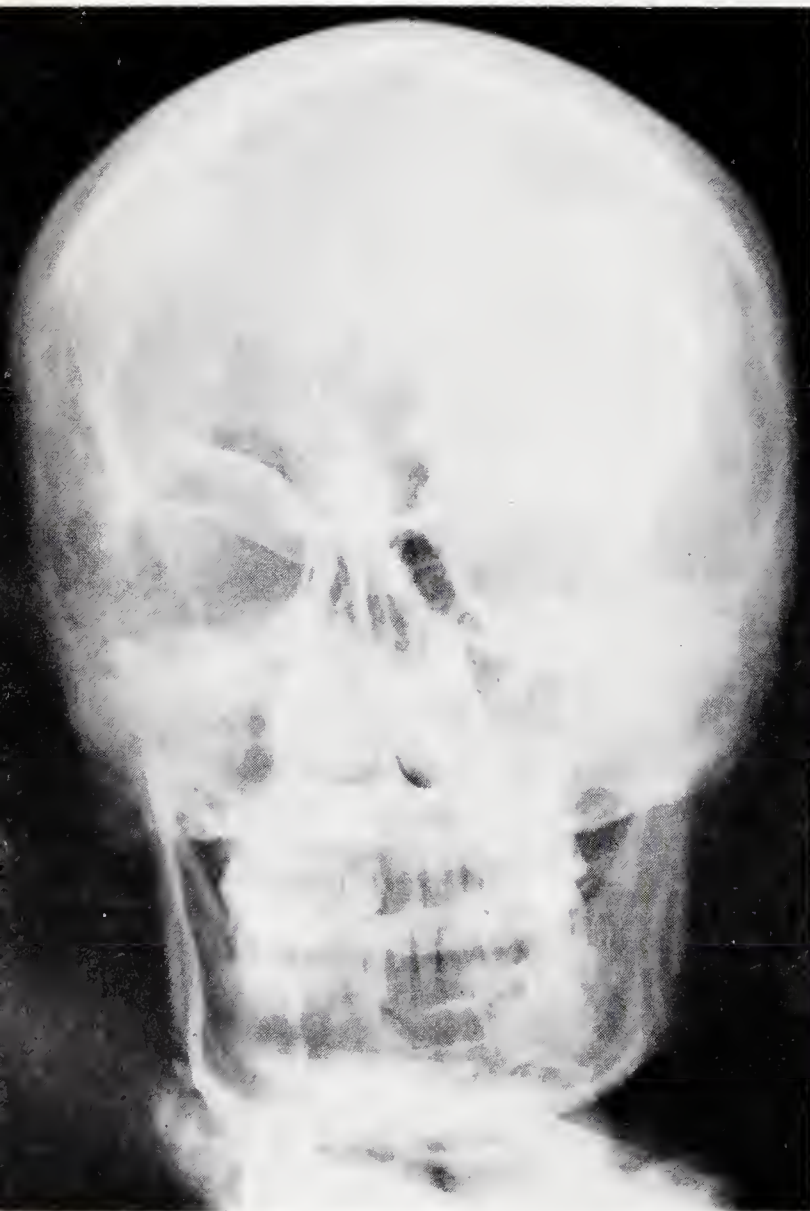
The Department of Medicine, University of Arkansas Medical Center

*James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

Answer on Page 284





PUBLIC HEALTH AT A GLANCE

ARTHROPOD-BORNE ENCEPHALITIS

The outbreak of encephalitis which is presently in progress and centered around St. Petersburg, Pinellas County, Florida, has received nation-wide attention. There are three principal arthropod-borne viruses that cause encephalitis in humans. These are: Eastern equine encephalitis (EEE), Western equine encephalitis (WEE), and St. Louis encephalitis. It is reported that the variety causing the present epidemic in Florida is of the St. Louis type.

Many individuals are of the opinion that the reference to equine origin in describing the disease is not necessary and its use should be discontinued. The horse, like man, is a dead-end host and does not contribute to the transmission cycle of the disease. St. Louis encephalitis is an inapparent infection in horses and has no particular significance in considering the transmission cycle of the disease.

On September 14, 1962, it was reported that the number of suspected human cases of encephalitis in the Florida outbreak had reached 186 with the number of fatalities listed as 16 individuals. In the October, 1961, publication of the Arkansas Animal Morbidity Report, Vol. 6, No. 10, a confirmed human case of St. Louis encephalitis, which occurred in Arkansas, was fully described. The report pertained to a 13-year-old, white male who lived in Poinsett County, Arkansas. Interested individuals may wish to review the contents of that case report as background information. The Fort Smith Health Department released information September 14, 1962, on a suspected case of encephalitis in a 7-year-old child and a report of three human cases has also been received from Pine Bluff, Jefferson County, Arkansas.

The literature indicates that there exists cer-

tain basic characteristics of these three types of encephalitis. It is the general belief that birds may serve as the natural host and that various species of mosquitoes are the vectors for all three viruses. Likewise, all three viruses produce the clinical disease in man. WEE and EEE produce the clinical disease in horses and EEE in birds alone.

Arkansas is listed as falling in the geographical distribution for all three types of the arthropod-borne encephalitis which occur in the United States. To date in 1962, in Arkansas, 21 cases in 21 herds of clinical equine encephalitis in horses have been reported. These cases are not confirmed by laboratory findings but the clinical symptoms are quite characteristic of the disease and it is very unlikely that the practicing veterinarians have misdiagnosed the cases. These reported clinical cases in horses tell us that either WEE or EEE is currently active in this State. The last reported cases occurred in July, 1962, and were distributed as follows: 1 case from the central part of the State and the other 7 from the southwest section of Arkansas.

The Disease in Horses

The onset of sleeping sickness in horses is quite sudden with high fever, staggering, followed by rapid progressive paralysis and death within two to four days. In the less severe cases, the clinical symptoms may include fever, incoordination, paralysis of the lips, lassitude, circling, leaning against a fence, standing with hanging head and wide stance or even with front legs crossed, inability to swallow, falling and inability to rise, grinding of the teeth, and spastic paralysis—all of which may be observed during the course of the disease. In horses, the Western type is about 20-25% fatal while the Eastern type may be 80-

90% fatal. No specific therapy seems to have any value.

A specific diagnosis in diseased animals is made in the laboratory by isolation of the virus from the brain, or by complement fixation tests on a series of blood specimens.

The Disease in Man

The disease in man has many variable manifestations. Thus, a specific diagnosis is very difficult. Extensive observation on a group of cases may suggest a specific etiologic diagnosis and should be supported by clinical, clinical laboratory, and pathologic study. Viral encephalitis may resemble similar symptoms produced by many other agents, viral and non-viral. The literature states that the Western and St. Louis types in mild cases may resemble nonparalytic poliomyelitis. The Eastern equine encephalitis is reported to be the most severe with case fatality rates of 20-80% depending on the adequacy of medical and nursing care. It appears that all ages are susceptible, but factors such as occupation and habits leading to exposure to the vector and individual immunity through previous inapparent infection is the true determining factor in age selection. In some areas, children may present high susceptibility while in other areas, under different conditions, adults may be principally involved.

The symptoms in man are headache, fever, reflex changes progressing to stupor and coma, which characterizes the more severe cases. It is reported that paralysis is observed less frequently than in poliomyelitis. The incubation period of equine encephalitis in man is not fully described but good evidence points to a period from 4-21 days with an average of 7-15 days.

No specific therapy is available for combatting the disease in man but the mortality rate can be greatly reduced by expert medical and nursing care.

A specific etiologic diagnosis is made in a manner similar to that described earlier in this article for horses. The use of both the complement fixation and neutralization tests will pinpoint a high proportion of cases as to type of virus producing the infection. There are other techniques for hemagglutination inhibition tests which have been developed for use with some of the causative agents.

In most areas where outbreaks of arthropod-borne viral encephalitis have occurred, control

measures have been applied to the vector itself where known. The sources of vector infection may involve large groups of birds or animals, many of which may not be known. Therefore, control measures directed toward this source would be ineffective and impractical. For man, we have local and individual protection by the use of residual DDT, larvicides, screens, repellants, and by avoiding night exposure to mosquitoes.

Vaccines have been made from inactivated chick embryo and can be prepared for all the viruses. Vaccination will protect only those actually vaccinated. Outbreaks of the disease in humans are rather infrequent over a period of years. Once an epidemic has been recognized, the use of a vaccine would have little value. Horses, on the other hand, are exposed to large numbers of infected mosquitoes and annual vaccination against viral encephalitis of the Eastern and Western types is highly recommended and of proven value.

It is reported that the virus cannot ordinarily be isolated from the blood of horses or men, and there is no evidence of contact transmission. Isolation and quarantine are not recommended. However, it is good logic to avoid areas where a known outbreak is in progress. Precautions pertaining to carriage and transporting of infected mosquitoes by plane or boat should always be applied.

Summary

The factors which are important to remember when considering the disease (sleeping sickness) arthropod-borne viral encephalitides are:

A. The arthropod-borne viral encephalitides are the causative agents of encephalitis of man, horse, sheep, and other animals. These viruses have a wide geographical distribution.

B. These viruses are transmitted by a number of different mosquitoes and ticks.

C. In areas where outbreaks occur, man and other animals which are observed to be ill may not be sources of vector infection, but other vertebrates, birds, or mammals which show no signs of the disease or infection may be the actual source of vector infection.

D. The diseases are limited to certain seasons of the year with various factors influencing the progress of an outbreak. These factors may consist of host species populations, vector activity, and other environmental conditions.

FEATURES

E. The different viruses have many related characteristics.

F. A specific treatment for the disease does not exist for man or animals.

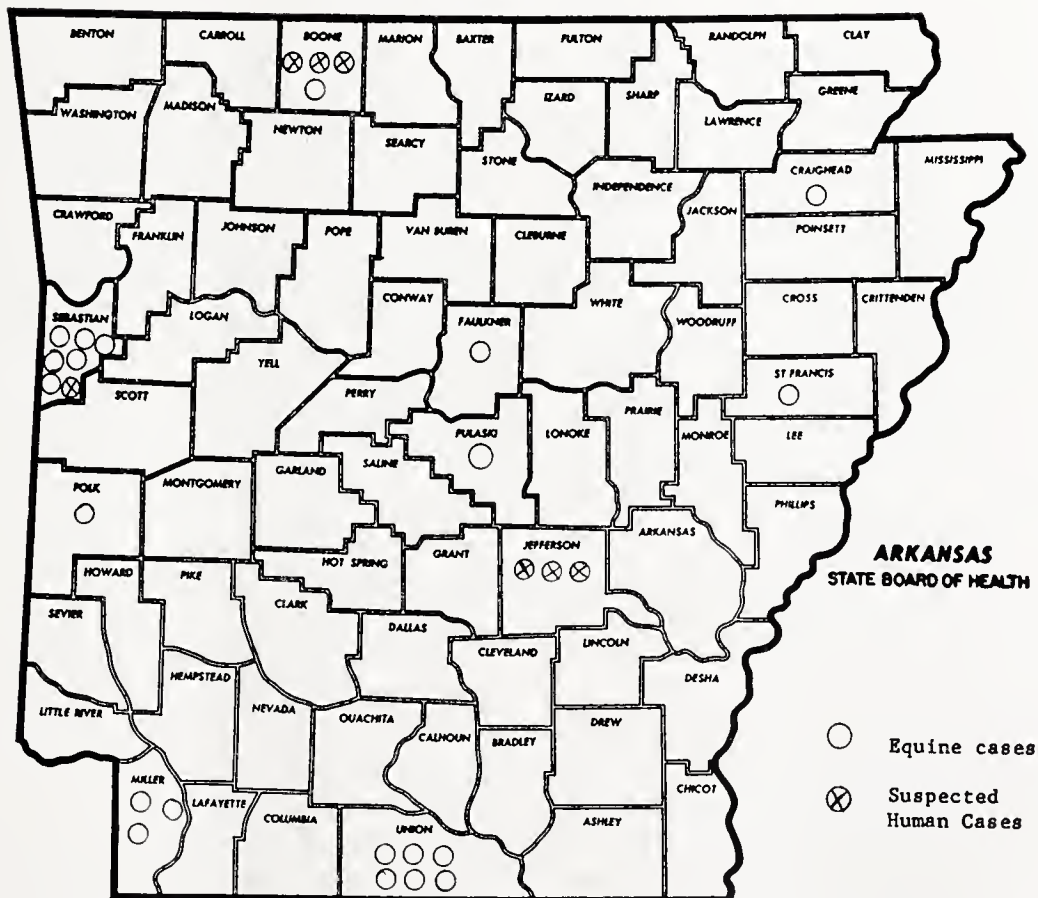
G. Control measures are directed principally at vector abatement where practical. Vaccines can be produced but are usually not indicated in man for various reasons. A bivalent vaccine employed on an annual basis is effective in horses.

Passive prophylaxis in man by the use of immune serum has not been tried but may have value under some circumstances. Isolation and quarantine of known cases is not recommended.

H. The only international restrictions pertaining to the disease are directed at prevention of transportation of infected arthropod vectors.

Harvie R. Ellis, D.V.M., Director
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EQUINE AND SUSPECTED HUMAN CASES OF
ARTHROPOD-BORNE ENCEPHALITIS - AUGUST, 1962





EDITORIAL

"Progressive Patient Care in Hospitals Should Not Include Self Care Units"

By Alfred Kahn, Jr., M.D.

THERE IS A PUBLICATION ENTITLED "Elements of Progressive Patient Care" which is worthy of study by all practicing physicians. It was written by U. S. Department of Health, Education and Welfare, and published in September 1962. A discussion of this follows:

The concept is an effort to tailor the hospital services to the patients' needs. In other words, this program tries to better utilize "scarce professional and technical personnel, and would permit a more flexible use of facilities." Actually, the authors of this booklet recommend very rightly that this plan of caring for patients should be integrated into the total community planning.

The elements of this program are: intensive care, intermediate care, self care, long term care, home care, and out patient care. As the authors state in this program the patient gets the type of attention that he needs; the physician knows that his patient will be given intensive treatment or intermediate care or ambulatory care as he needs—thus he has better utilization of time; the nursing staff can concentrate their greatest effort where it is most needed. The acute and chronic nurse shortage would be vastly benefitted by avoiding the dilution of the nursing services on almost well patients.

The intensive care unit is designed for the critically ill, both medical and surgical. This might include serious accident cases, certain post-operative cases, critically ill coronary artery occlusion cases, diabetic coma cases, etc. This type of patient care is as the name implies, one which demands almost constant observation of the patient by the most skilled nursing and professional staff. It demands 24 hour coverage by nurses, and without diminution in professional ability or

numbers at night. The ward has to have the latest equipment for monitoring the condition of the patient as well as the most modern resuscitative equipment. In order for this type of unit to work effectively there are certain important architectural requirements; for example, direct, constant visual inspection of each patient in the four to six bed unit is mandatory; some of the beds should be partitioned off from the others; good lighting, air conditioning, adequate storage space, toilet facilities, etc. are all most necessary.

As contrasted with the intensive care unit is the intermediate care unit for patients all moderately ill with respiratory infections, disabling generalized diseases which prevent locomotion, post-operative cases of herniorrhaphies, appendectomy, pelvic repair, etc. Actually, a very high percentage of our current hospital cases fall into this category. This intermediate care unit should be staffed in a manner similar to our conventional hospital. The architecture of this unit would be like a current conventional hospital. Obviously, since these patients are not critically ill, the need for elaborate nursing care is not necessary; a good deal of the nursing can be performed by nurse technicians and practical nurses under the supervision of a few registered nurses. There is less need for elaborate emergency trays and units; the need for resuscitation equipment is minimal.

The next proposed steps are to this reviewer highly controversial. A self-care hospital unit is the next lower step. This unit would comprise patients who are ambulatory, who can feed themselves, who can walk to the diagnostic laboratories and treatment areas. There are strong arguments against this type of unit. In the first

place, it places the hospital in direct competition with private physicians who can perform these services in their offices. Secondly, almost all hospitals go to the public either directly for funds or indirectly through government loan agencies for building funds; if private physicians can supply this need, why ask the government or the public for building funds? Thirdly, it is the hospital check-up which is causing the cost of hospitalization insurance policies to cost so much; it is manifestly impossible on a \$40.00 to \$100.00 annual insurance premium to get \$200.00 to \$500.00 worth of hospital services if every policy owner goes into the hospital for frequent check-ups. Moreover, the honest policyholder has to pay higher and higher premiums to defray the cost of the patient who goes to the hospital for purely diagnostic services on a hospitalization plan not actuarially set-up for this. Lastly, if this type of unit should become popular, the hospital and not the medical profession will, to a large extent, control the practice of medicine in the community, and this leads down many avenues that are undesirable.

The long term care unit rightly falls into this overall program. This is basically a unit to care for the chronically ill and the aged. If a unit such as this can share the diagnostic, dietary and nursing facilities of an adjoining hospital, it will result in great construction and maintenance savings. The cost to the public and the hospital can thus be materially reduced. Cost to the patient of this long term care is perhaps the biggest worry to this group of people who are too sick to stay home and too well to be considered suitable cases for a conventional hospital. The cost

of these services has to be kept low because it is a long term proposition. These units should be on the ground floor and small enough so that the patient feels that he is getting some personal attention. The reviewer feels that multiple units are desirable if the number of beds exceeds twenty patients.

The lowest unit in this overall plan is the so-called home care. Here again the need for coordinating home care with a hospital care seems to be of very questionable benefit. Admittedly, there is an occasional patient who might need to return to the hospital for some highly specialized type of treatment. On the other hand, why is there any need for centralizing this service through the hospitals? This is the type of case which the general physician has admirably handled for years. What progress is there in centralization? Here again there lurks the possibility of the physician becoming subservient to the hospital in the morass of rules, red tape, and divided authority.

The ideas embodied in the overall reorientation of hospitals toward progressive care are commendable where they deal with patients who actually require hospitalization. The so-called self-care units for patients who are ambulatory and relatively well, is a threat to the private practice of medicine and unnecessary building expense to the public, and a potent source of increasing costs of hospital insurance premiums. All physicians should participate in the planning of new hospital facilities. Much progress can be made by the intelligent co-operation of the professional and administrative staffs to better patient care through better facilities.



Hospital Gets New Eye Center

The new eye center in Arkansas Baptist Hospital was open for inspection and put into use recently. It has a new machine which contains a powerful magnet used in drawing bits of metal out of the eye, and two operating rooms designed for eye surgery.

County Medical Body Scholarship Plan Announced

Dr. James O. Cooper was elected president of the Union County Medical Scholarship Association, and Dr. Berry L. Moore was elected vice president.

The purpose of the fund is to serve as a memorial to deceased members of the medical profession in that area, and to provide scholarship assistance to worthy medical students.

Doctor Says Women Over 20 Need Annual Test for Cancer

Dr. Alex Tharp Gillespie, an obstetrician and gynecologist, speaking before the Pulaski County Unit of the Arkansas Cancer Society, said that all women over 20 should have annual "Pap" smears as a routine precaution against uterine cancer. He said that uterine cancers could be virtually eliminated if all women took this precaution. This form of cancer is curable if detected early and a Pap smear, which takes about 10 seconds is painless and inexpensive and can afford a diagnosis before more apparent symptoms develop.

The tests once were recommended annually for women 30 or over, but Dr. Gillespie said that 12 to 15 per cent of such cancers had been found to occur in women under 30, some as young as 13.

Five Doctors From Arkansas Receive F.A.C.S. Awards

Five doctors from the state of Arkansas were among the approximately 1,100 surgeons inducted as new Fellows of the American College

of Surgeons during the annual Clinical Congress of the world's largest organization of surgeons. Those receiving this distinction from the state of Arkansas at the 1962 convocation are: John H. Adametz, M.D., Benjamin W. Drompp, M.D., John Laurens, M.D., Benjamin M. Lincoln, M.D., and Carl E. Wenger, M.D. The A.C.S. was founded in 1913 to establish standards of competency and character for specialists in surgery.

Fellowship, entitling the recipient to the designation, "F.A.C.S.," following his name, is awarded to doctors who fulfill comprehensive requirements for acceptable medical education and advanced training as specialists in one or another of the branches of surgery, and who give evidence of good moral character and ethical practice.

1963 Prize Essay Contest

The Council on Undergraduate Medical Education of the American College of Chest Physicians offers three cash awards to be given annually for the best contribution prepared by undergraduate medical students on any phase of the diagnosis and/or treatment of chest diseases (heart or lungs).

The first prize will be \$500; second prize will be \$300; and third prize, \$200. Each winner will also receive a certificate of merit.

The winning contributions will be selected by a committee of chest specialists and will be announced at the 29th Annual Meeting of the American College of Chest Physicians to be held in Atlantic City, June 13-17, 1963. All manuscripts become the property of the American College of Chest Physicians.

The official application form, sample copies of the journal, and additional information may be secured by writing Mr. Murray Kornfield, Executive Director, American College of Chest Physicians, 112 E. Chestnut St., Chicago 11, Illinois.

Dr. Herron Cited for CD Work

The Public Health Service awarded Dr. John T. Herron, Arkansas state health office, a certificate of commendation recently for his contributions in the field of Civil Defense health preparedness.

The certificate was presented to him by Surgeon Gen. Luther L. Terry at a surprise ceremony in his office, saying it is the first such recognition bestowed by the service.

Herron has been state health officer in Arkansas since 1951. He also is chairman of the Civil Defense Committee of the Association of State and Territorial Health Officers.

Pediatricians Attend Pediatric Clinic

Pediatricians from throughout Arkansas were in attendance of a scientific meeting held at the Pediatric Clinic, Fayetteville, Arkansas, in September.

Sponsored by Drs. Wilbur Lawson and Wade Burnside, the program included talks by Harold Goldman, M.D. of Tulsa, Oklahoma, Alice Gamble Beard, M.D., Little Rock, Warren Murry,

M.D. and James D. Mashburn, M.D., Fayetteville.

Nurses Hear Dr. Charles Wilkins Speak on Prevention of Heart Disease

Dr. Charles Wilkins, Jr. of Russellville spoke at a cardiac workshop for nurses in University Medical Center. His subject was "Prevention of Heart Disease." He was one of seven speakers before the 450 nurses from throughout Arkansas who attended the workshop. It was sponsored by the Arkansas Heart Association.

MCAT Data of Applicants to the Class of 1961-62

Data on applicants to U. S. medical schools date back to the original report of Dr. Burton Myers on the entering class of 1926-27. While the continuity of this accounting of applicants has been broken twice, once for the classes of 1930 and 1931 and again during World War II, the interest in the questions of both supply and quality of applicants has been continuous throughout this period. In the summary of his second report in 1927 Dr. Myers pointed out that,

TABLE 1
MEAN MCAT SCORES OF ACCEPTED AND REJECTED APPLICANTS
DURING THE PAST 10 YEARS

Accepted Applicants						
Year	VA	QA	MS	Sci	No. Taking MCAT	Total Number Accepted Applicants
1952-53	522	526	519	525	7,346	7,778
1953-54	519	525	524	530	7,426	7,756
1954-55	517	521	530	533	7,527	7,878
1955-56	524	528	527	522	7,688	7,969
1956-57	525	525	526	519	8,012	8,263
1957-58	528	517	527	516	8,223	8,302
1958-59	527	532	520	523	8,301	8,366
1959-60	529	527	527	527	8,449	8,512
1960-61	527	533	527	533	8,500	8,560
1961-62	533	538	522	537	8,633	8,682

Rejected Applicants						
Year	VA	QA	MS	Sci	No. Taking MCAT	Total Number Rejected Applicants
1952-53	465	459	467	457	7,398	8,985
1953-54	461	457	472	460	5,801	6,922
1954-55	457	455	473	459	5,661*	6,660
1955-56	466	459	476	454	6,652*	6,968
1956-57	463	458	473	445	6,859	7,654
1957-58	467	452	472	442	6,840	7,489
1958-59	461	456	467	441	6,305	6,804
1959-60	470	455	473	449	6,019	6,440
1960-61	464	453	473	449	5,462	5,837
1961-62	469	465	469	458	5,340	5,699

Year	Total Applicants				No. Taking MCAT	Total Number Applicants
	VA	QA	MS	Sci		
1952-53	493	492	493	491	14,744	16,763
1953-54	494	495	501	499	13,227	14,678
1954-55	491	493	506	501	13,188*	14,538
1955-56	497	496	503	490	14,340*	14,937
1956-57	496	494	502	485	14,871	15,917
1957-58	500	487	502	482	15,063	15,791
1958-59	499	499	497	488	14,606	15,170
1959-60	504	497	505	494	14,468	14,952
1960-61	503	501	506	500	13,962	14,397
1961-62	509	510	501	507	13,973	14,381

*Estimated

TABLE 2
PROBABILITY OF ACCEPTANCE TO U. S. MEDICAL SCHOOLS IN 1960-61 AND 1961-62
BASED ON MEDICAL COLLEGE ADMISSION TEST SCORES
OF ALL APPLICANTS TAKING THE TEST

If MCAT Score is Between	Chances in 100 of Being Accepted Are:							
	VA		QA		MS		Sci	
	1960-61	1961-62	1960-61	1961-62	1960-61	1961-62	1960-61	1961-62
700-799	85	78	92	92	78	81	91	89
600-699	79	80	84	83	78	79	87	86
500-599	71	72	72	70	70	71	75	73
400-499	56	55	54	53	54	57	53	53
300-399	32	31	30	31	31	35	24	25
200-299	13	14	9	8	7	14	3	2

“Administrative officers of medical schools have not only an opportunity but a duty to study the problem of selecting superior students. . . . If we are making progress in the more careful selection of freshmen matriculates, the evidence should be found in a decreased mortality among freshmen medical students.”

To serve this responsibility, refinement of applicant data has required exacting and arduous effort. First steps involved the defining of terms and the laying of ground rules for relatively uniform admissions procedures. With the resolution of some of these basic questions attention focused more intensively on the quality of the applicant. Through the development and use of the Medical College Admission Test, objective data on quality have been available now for a decade.

Table 1 presents the averages on the four subtests of the MCAT for accepted, rejected and total applicants through 1961-62. Most striking is the relative constancy in the data for a period of 9 out of 10 years. It is only in the last year (1961-62) that an increase in overall quality beyond the original standardization norms of 500 has occurred. The admissions committees in the process of selecting the best overall candidates consider many factors in addition to the MCAT.

It is of interest, nevertheless, to note that while the total applicant mean on the verbal ability subtest increased by 6 points over last year, the increase for accepted applicants was 6 points and for rejected 5 points. Similarly, on the quantitative subtest the increase for the total group was 9 points, for the accepted 5 points and for the rejected 12 points. For the science subtest the total average increase was 7 points, the accepted group again showing less gain than the rejected group, the gains being 4 and 9 points respectively.

The question here is whether an overall increase in the measured ability of the total applicant group could have led to a greater increase in the scores of the accepted applicant group. The modern society subtest, the section of the MCAT often receiving the least consideration, showed no increase either in the total group or in the accepted and rejected groups. Thus the slight increase in the measured ability of the 1961-62 applicants was not differentially reflected in a comparison of the accepted and rejected applicant groups. Aside from a few minor shifts at any given MCAT level, the probability of acceptance remained much the same as for the previous year. (See Table 2.)

Submitted by the Division of Basic Research, AAMC. On request complete data and sources will be furnished.

The Month in Washington

Influenced strongly by the thalidomide incident, Congress approved legislation giving the Food and Drug Administration more control over the prescription drug industry.

The Kennedy Administration and Sen. Estes Kefauver (D., Tenn.), chief sponsor of ethical drug legislation, successfully exploited the thalidomide incident after prospects of passage of a strong drug bill waned.

However, they were unable to get all they wanted in the legislation even with the impact on Congress of the widespread publicity about the clinical testing of thalidomide in this country coupled with reports from Europe of births of malformed children by women who had taken the drug during pregnancy.

One Administration proposal rejected by Congress would have given the Secretary of Health, Education and Welfare authority to require physicians to report directly to him on their clinical tests with new drugs.

The new law empowers the FDA to require "substantial evidence" of the efficacy, as well as safety, of new drugs before licensing them for marketing. The AMA had warned Congress that this might lead to a test of relative efficacy which could result in potentially-helpful drugs being barred from sale. The AMA contended that the old FDA requirement that a drug live up to its label claims was a sufficient test of effectiveness.

The Pharmaceutical Manufacturers Association also warned that drug research might slow down as a result of the new law.

"Some provisions of the new law may not be helpful to the public," the PMA said. "In fact, unless there is the wisest administration of the law harm can be done. For example, medical research may slow down and the costs of medications may increase."

Physicians will be required to get the consent of the patient, or a close relative, for treatment with experimental drugs except in instances where the physician feels that it would not be feasible or would be contrary to his professional judgment. Consent already is a part of the code of ethics of the American Medical Association.

Some other major provisions of the new law:—

—Authorize the FDA to swiftly suspend any drug which it suspects is dangerous.

—Require that the generic name of a drug be printed on the label in type half as large as that for the trade name.

—Extends the time during which FDA may review a new drug application before it must be approved or disapproved.

—Authorizes the HEW Secretary to establish generic names for new drugs.

—Authorizes the HEW Secretary to prevent testing of drugs on humans if he determines there has not been sufficient preclinical testing.

—Require batch certification of all antibiotics.

* * *

Congress passed a bill authorizing a \$36 million three-year program for federal aid for intensive vaccination programs against polio, diphtheria, whooping cough and tetanus.

The vaccination campaigns are to be aimed primarily at children less than five years old. The U. S. Surgeon General was given broad authority in deciding the amount and terms of federal grants under the program.

Grants will be made to states or, when approved by state officials, to cities or other local governmental units.

Also on the immunization front, a Special Advisory Committee twice recommended to the Public Health Service that Type III oral polio vaccinations be continued for pre-school and school age children but not for adults for the time being.

The Public Health Service accepted the recommendation and urged that communities proceed with planned mass vaccination campaigns using Type III for children. But some communities decided to hold up their mass immunization programs at least temporarily or to suspend Type III doses for children, as well as adults.

The Advisory Committee first made its oral polio vaccine recommendation at an emergency meeting on September 15. The meeting was called after Canada suspended use of oral polio vaccine. The Health Ministry action in Canada, where all three types of the oral vaccine had been given in one dose, was prompted by the occurrence of a few cases of Type III polio. The three types of vaccine are given in separate doses in this country.

There also were at that time a few Type III cases reported in this country among adults who

had taken the oral vaccine.

After an Oct. 2 meeting, Dr. Luther L. Terry, Surgeon General of the PHS, said:

"The recommendation that Type III be confined to children has raised the question of spread from vaccinated children to adults, especially family members. The evidence does not indicate a hazard to adults exposed in this way."

"The level of this risk can only be approximated but clearly is within range of less than one case per million doses. Since the (Type III) cases have been concentrated among adults the risk to this group is greater whereas the risk to children is exceedingly slight or practically nonexistent."

* * *

President Kennedy signed into Law H.R. 10 permitting physicians and other self-employed persons to take a federal income tax deduction for private pension plans.

Kennedy signed the legislation less than six hours before the midnight Oct. 10 deadline that he had to act on the measure. If he had not signed it by then, it would have become law without his signature. It appeared certain that a presidential veto would have been overridden.

Physicians represent less than three percent of the self-employed who could benefit under the new law.

Enactment of the legislation into law climaxed a 12-year battle in Congress. The House passed it twice, in 1958 and 1959, but it died each time in the Senate with adjournment.

This year the House passed it with a 361-0 vote. The Senate vote was 70 to 8.

The new law authorizes a self-employed individual, such as a physician, to contribute up to 10% of his earned income or \$2,500, whichever is less, toward a retirement plan, provided he includes all of his employees with three or more years of service under the plan. A tax deduction of half of the contribution to the self-employed person's retirement plan would be allowed.

The contributions made on behalf of employees would be fully tax deductible.

The measure prohibits drawing on the retirement funds without penalty before age 59½, except in case of disability or death.

Arkansas Dr. Among Representatives to the W.M.A. Meeting

Four United States physicians were selected as official United States representatives to the World Medical Association meeting in New Del-

hi, India November 10-17. The Association had representatives from 56 nations who met to consider health and medical affairs in the entire world. The official U.S. delegation is composed of Dr. Norman Welch, Boston, Mass., delegate; Dr. R. B. Robins, Camden, Ark., Alternate; Dr. George Fister, Ogden, Utah, delegate; and Dr. Gerald Dorman, New York City, alternate.

THINGS TO COME



American College of Allergists to Have Graduate Course

The National Association of Recreational Therapists will hold the 1963 Annual Conference, April 8-12, 1963 at Oklahoma Center for Continuing Education, Norman, Oklahoma.

Recreational Therapists to Hold Conference

The American College of Allergists Graduate Instructional Course and Nineteenth Annual Congress, March 24-29, 1963, Americans of New York, New York City. For further information, write to: John D. Gillaspie, M.D., Treasurer, 2141 14th Street, Boulder, Colorado.

Spring Clinical Conference to be in Dallas

The Dallas Southern Clinical Society spring Clinical Conference, March 18, 19, 20, 1963, Statler Hilton Hotel, Dallas, Texas.

Post Graduate Sessions 1962-1963 Little Rock, Arkansas

The University of Arkansas School of Medicine announces a Post Graduate Session to begin December 6, 1962. Five of the customary type programs plus a continuing seminar will be presented during the 1962-63 school year. All of these programs will be conducted by the faculty of the School of Medicine and will take place at the Medical Center.

The courses are designed primarily for physicians in general practice, but any Doctor of Medicine is welcome to attend. To those interested, address all communications to: Office of Postgraduate Medicine, University of Arkansas Medical Center, Little Rock, Arkansas.

Annual Spring Congress in Ophthalmology and Otolaryngology

The Gill Memorial Eye, Ear and Throat Hospital is announcing its thirty-sixth annual spring

congress in Ophthalmology and otolaryngology, April 1, through April 5, 1963. For further information write: Superintendent, P. O. Box 1789, Roanoke, Virginia.



PERSONAL AND NEWS ITEMS

Dr. Pence Addresses Civic Club

On October 12th the Noon Civic Club of Fort Smith was addressed by Eldon D. Pence, M.D. on the subject of "The Annual Physical Examination."

Dr. Louise Henry Speaks to Auxiliary

On October 18th the Sparks Hospital Auxiliary was addressed by Louise Henry, M.D. on the subject of "Cataracts-Etiology, Type, and Treatment."

Noted Physician to Speak Here

Dr. John H. Talbott, Director, Division of Scientific Publications and Editor of the Journal of the American Medical Association was featured speaker for the District Medical Society meeting in Camden in October.

Before becoming Editor of the Journal of American Medical Association, Dr. Talbott was head of the Department of Medicine at the University of Buffalo School of Medicine and a former Professor of Medicine at Harvard Medical School. "Gout" was the subject of his talk at Camden.

Learn Reasons of Stillbirth

A Texarkana obstetrician, Dr. Eugene T. Ellison, speaking before the District VII meeting of the American College of Obstetricians and Gynecologists urged physicians to seek autopsies more actively to find the reasons for the alarming number of stillbirths and deaths of newborns.

Skin Is Subject at Medical Meet

Dr. Mage Honeycutt of Little Rock, a dermatologist, spoke recently at a meeting of the Southeast Arkansas Medical Society in Dumas. His subject was "Diseases of the Skin."

Dr. Melby Takes Post in Boston

Dr. James C. Melby, program director of the Clinical Research Center at the University Medi-

cal Center, has resigned to take a position with Boston University Medical School, as head of the section on endocrinology in the department of medicine at Boston University.

SPA Physician Accepts Rehab Post in Texas

Dr. Euclid M. Smith, Hot Springs physician, has accepted the position of consultant to the regional director of the federal rehabilitation service, with headquarters in Dallas, Texas. Dr. Smith is a former president of the Arkansas Medical Society, and was a trustee for the University of Arkansas School of Medicine from 1941-49. He also was a member of the Board of Control for the Arkansas State Hospital from 1952-56.

Dr. Quin Baber, Jr. Opens Office for Practice of Surgery

Dr. Quin Baber, Jr. announces the opening of his offices in Benton, Arkansas for the practice of general surgery. Dr. Baber is a native of Malvern, Arkansas and received his medical education at the University Medical Center and his surgical training at the University Medical Center and Veterans administration Hospital in Little Rock.

Dr. Lytle Joins Clinic Hospital

Dr. Jim Lytle became associated with the North Arkansas Clinic Hospital in September. He practiced medicine at Mammoth Spring before moving to Batesville three years ago.

Dr. F. C. Maguire Cited

Dr. F. C. Maguire of Augusta has been awarded a Certificate of Appreciation and a lapel button in behalf of his 20 years of service as medical advisor to the Augusta Local Board 78 of the Selective Service System.

Batesville Doctor Moves to Mulberry

Dr. Robert Lee Calaway has set up his medical practice in Mulberry. For the past 16 years Dr. Calaway was associated with the North Arkansas Clinic Hospital in Batesville.

Dr. Peeples, Jr. Rejoins Staff of Hamilton's Clinic

A West Memphis physician, Dr. C. W. Peeples, Jr., has rejoined the staff of Hamilton's Clinic after three years of special study. Dr. Peeples has been studying cardiology and internal medicine at Kennedy Veterans Hospital in Memphis.

Doctors Reminisce About Profession's 'Old Days'

Doctors Charles Oates, Luther D. Reagan, W. A. Lamb, Barton Rhinehart and M. J. Kilbury, Sr., were honor guests at a dinner in Riverdale Country Club at the Pulaski County Medical So-

ciety's annual meeting in September. The five physicians, all life members of the society, have given a total of 237 years to practicing medicine. They reminisced about some of the changes that have taken place in medicine since they began practicing.

Doctor Named to Staff of Texas Clinic

A former El Doradian has been appointed to the pediatrics staff of Scott-White Clinic in Temple, Texas.

The young physician is Dr. Robert E. Myers. Dr. Myers graduated from the School of Medicine of the University of Arkansas in 1953.

Democratic Campaign Co-Chairmen Announced

Dr. L. H. McDaniel of Tyronza, and Dr. C. Dickinson of DeQueen, have been named to serve as co-chairmen of the State Professional Men's Committee for the Democratic Campaign.

ANSWER—Electrocardiogram of the Month

RATE: App. 70 RHYTHM: Sinus Arrhythmia
PR: .18 sec. QRS: .08 sec. QT: .36 sec.
INTERPRETATION: Abnormal. Abnormal elevation of RS-T in I, II, III, aVF, V5, V6, with reciprocal depression aVL and right precordial leads. Recent acute myocardial infarction, postero-lateral.

COMMENT: This patient was admitted to hospital and subsequent electrocardiographic observation, together with further examinations, revealed characteristic findings of an acute myocardial infarction. The changes in the trace localized in leads suggested postero-lateral involvement. Except for increase in pain during the first two days his hospital course was uneventful. He was seen briefly three months later with slight recurrent pain but no evidence of repeated infarction was demonstrated. The tracing is unusual because of the problem presented by wide spread injury current in the initial tracing.

ANSWER—What Is Your Diagnosis?

#AO5-21-25 29 year old white female

A lump had been present above the left eye for 25 years without recent change. The patient had had headaches in recent months.
DIAGNOSIS: Fibrous dysplasia of the skull.

X-RAY FEATURES: There is an area of irregular poorly defined density in the left frontal bone with some central mottled areas of decreased density. The left orbit is small as though compressed in its superior and lateral portion, indicating that this lesion must have been present during the developmental period.

The roentgen findings are characteristic of fibrous dysplasia in this area which is usually an area of increased density while in other bones it is more likely to be a lytic defect.



PROCEEDINGS OF SOCIETIES

American Association of Medical Assistants Convention Held

The sixth annual convention of the American Association of Medical Assistants, was held at the Statler Hotel in Detroit, Michigan September 27-30, 1962. Arkansas delegates to this convention were: Miss Bess Kennedy, El Dorado, president of ASMAS; Mrs. Mildred Ruck, Little Rock, president-elect, and Mrs. Louise Kerby, Little Rock, Education Chairman of the Pulaski County Medical Assistants Society. The theme of this convention was "Highways to Health." Dr. George M. Fister, President of A.M.A. was a principal speaker.

Medical Assistants Organized

The Johnson County Medical Assistants Society was organized at an installation banquet in Clarksville on September 26, 1962. Dr. R. H. Manley of Clarksville was master of ceremonies, and introduced the guest speaker, Mrs. Katherine Spraggins of Little Rock, immediate past president of the Arkansas State Medical Assistants Society. Mrs. Spraggins also installed the following officers: Mrs. Brenda Galloway, president; Mrs. Sally Dobbs, president-elect; Mrs. Mary Velte, recording secretary; Mrs. Loraine Kendall, corresponding secretary, and Mrs. Beulah Cox, treasurer, all of Clarksville.



Mrs. Padberg Is Speaker at Medical Auxiliary in Harrison

Mrs. Helen Padberg of Little Rock, president

of the auxiliary of the State Medical Society, was guest speaker for the Harrison area auxiliary recently. Mrs. Padberg is the wife of Dr. Frank Padberg.



NEW MEMBERS

Washington County Medical Society announces that DR. VERLA P. MCANELLY has been added to its roster of members. A native of Huntsville, Arkansas, she received her pre-medical education from the University of Arkansas. In 1958 her M.D. degree was received from the University of Arkansas Medical School. She has practiced in Greenville, Mississippi. Dr. McAnelly is an anesthesiologist and her address is Route 6, Fayetteville, Arkansas.

DR. JAMES R. CALLAWAY is a new member of Johnson County Medical Society. He is a native of Murfreesboro, Arkansas. His B.S. degree was received from Monticello A. & M. College in 1952. Dr. Callaway's medical education was received from the University of Arkansas Medical School from which he obtained his M.D. degree in 1960. Dr. Calloway has entered into general practice in Clarksville, Arkansas.

A new member of Pulaski County Medical Society is DR. ROBERT G. VALENTINE. A native of Madison, Wisconsin, he received his pre-medical education from the University of Wisconsin and from Hendrix College. His M.D. degree was received from the University of Arkansas School of Medicine in 1959. Dr. Valentine is an anesthesiologist with his office located at 4708 Lakeview Road, North Little Rock, Arkansas.

Miller County Medical Society announces that DR. ROBERT H. CHAPPELL is a new member. He is a native of Waverly, Tennessee and his B.S. degree was received from Birmingham-Southern College located at Birmingham, Alabama. Dr. Chappell's M.D. degree was received from Vanderbilt University in 1940. He practiced in Greenville, South Carolina from 1945 until 1946; in Houston, Texas from 1946 until 1950; in Vellore, South India from 1960 until 1961. He is a pathologist and his office is located at 912 Olive Street in Texarkana.



BOOK REVIEWS

ELECTROCARDIOGRAPHY, Third Edition, by Louis Wolff, M.D., Visiting Physician, Consultant in Cardiology, and Head of the Cardiographic Laboratories, Beth Israel Hospital; Clinical Professor of Medicine, Harvard Medical School, pp. 350 Illustrated. Published by W. B. Saunders Company, Philadelphia and London, 1962.

This textbook is interesting in that it stresses vectorcardiography. This is somewhat in contradistinction on most textbooks on electrocardiography. As such it makes this a rather interesting addition to the field. It is still untried among medical authorities as to the exact position of importance that vectorcardiography should be assigned. This book is divided into Basic Principles of Electrocardiography, Clinical Electrocardiography, and The Normal

and Abnormal Cardiac Mechanism. It is well illustrated. There are a number of electrocardiographic tracings. The book is well indexed, but references at the end of the various chapters are absent. This book is recommended as an interesting new approach in the teaching of electrocardiography. AK

SURGERY OF THE CHEST, Edited by John H. Gibbon, Jr., M.D., Samuel D. Gross, Professor of Surgery and Chairman of the Department of Surgery, The Jefferson Medical College, with the collaboration of 35 Authorities, 902 pp. Illustrated. Published by W. B. Saunders, Philadelphia and London, 1962.

This text book is a collaboration of various authorities and edited by Dr. Gibbon. The various contributors are outstanding in their fields and this in turn makes this book an outstanding text. The text covers the widest possible assortment of diseases. There is a chapter on Prosthetic Heart Valves. There is an excellent discussion of Hypothermia. Congenital heart disease is discussed. There is one chapter on Diagnostic Procedures in Cardiac Surgery. Problems peculiar to infants are reviewed. This book is well written and well illustrated. There are many references. This book should not be considered encyclopedic, as it is manifestly impossible to cover the whole field of thoracic surgery in 902 pages. This book is heartily recommended for medical students and practicing physicians.

PERIPHERAL VASCULAR DISEASES, Third Edition, by Edgar V. Allen, B.S., M.A., M.D., M.S. in Medicine, F.A.C.P., Section of Medicine, Mayo Clinic Late Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota; Nelson W. Barker, B.A., M.D., M.S. in Medicine, F.A.C.P., Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota; Edgar A. Hines, Jr., B.S., M.A., M.D., M.S. in Medicine, F.A.C.P., Section of Medicine, Mayo Clinic Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota; and other associates of the Mayo Clinic and the Mayo Foundation. pp. 1044, Illustrated. Published by W. B. Saunders and Company, Philadelphia and London, 1962.

This is an excellent textbook. It is probably the most authoritative treatise on Peripheral Vascular Diseases. It is interestingly and well written. It has many illustrations and charts. There is an excellent bibliography. Of particular interest to the reviewer is the section on Venous Thrombosis, Thrombophlebitis and Pulmonary Embolism. It is excellently written but occupies a relatively small portion of the text in relation to its importance. The text of course covers arterial disorders. There is even an interesting chapter on Periarteritis Nodosa and Temporal Arteritis. There is also an excellent discussion on various surgical procedures of diseases of the vascular tree. This book is heartily recommended as an outstanding text. AK



Sponsored by Arkansas Tuberculosis Association

PATTERNS OF ADENOVIRUS INFECTION IN THE RESPIRATORY DISEASES OF NAVAL RECRUITS

Two companies of naval recruits, one in training in the summer and the other in winter months, were found to have a comparable number of respiratory illnesses, but the severity of the episodes was greater in the winter than in the summer.

MICHAEL J. McNAMARA, LCDR, (MC), WILLARD E. PIERCE, HMC, USN (ret), YORK E. CRAWFORD, M.S., and LLOYD F. MILLER, Capt., (MC), USN; *The American Review of Respiratory Diseases*, October, 1962.

The purpose of this study was to evaluate the extent to which adenoviruses contribute to the total respiratory disease incidence of a particular recruit population.

The study population consisted of two companies of recruits in basic training at the Great Lakes Naval Training Center in Illinois. One company, with 55 men, began training in November, 1959, and completed it in January, 1960. It is termed the "winter company." The other, with 66 men, began training in July, 1960, and completed it in September, 1960, and is termed the "summer company."

The men in both companies were checked within 24 to 48 hours after arrival at the center. Groups of approximately 20 men each were interviewed by a medical officer or chief hospital corpsman. The men were interviewed three times a week. Before each interview the oral temperature was recorded.

A discrete respiratory disease was considered to have occurred if the symptoms differed in intensity, quality, or number from the usual pattern of respiratory symptoms in the same individual and were present for at least two days.

There were 117 discrete episodes of upper respiratory diseases for the 50 recruits in the winter group and 151 for the 69 in the summer group. Although these companies were sampled at different seasons of the year, the average number of respiratory illnesses per man in both the

winter and summer study periods was similar, but there was more respiratory diseases with fever during the winter study — 29.1 per cent versus 14.5 per cent in the summer group. More than 50 per cent of the recruits had respiratory complaints during the early weeks of training, with a moderate drop off as their training program neared completion.

EXPLOSIVE EPISODES IN WINTER

The explosive onset of disease was particularly noticeable in the winter company, in which more than 86 per cent of the recruits were suffering from respiratory illness within one week after their arrival or before the end of their first week in training.

The prevalence of respiratory illness in both companies provides a clear picture of the ever-nagging presence of respiratory disease in a recruit barrack. Between 25 and 80 per cent of the men were found to have some respiratory ailment. Only two men in the summer company and three in the winter company completed their basic training without experiencing a respiratory disease.

The majority of illnesses in both companies could be classified as mild, nonspecific respiratory infections.

In the summer company, 14 respiratory illnesses were associated with adenovirus by isolation of the virus and positive serologic reactions and 13 more by positive serologic reactions alone. In the winter company, 10 respiratory illnesses were associated with adenovirus by virus isolation and serologic testing and 13 by positive serologic reactions. Therefore, of the total of 268 respiratory illnesses in both companies, 50 could be attributed to adenovirus. Type 4 was the only adenovirus isolated.

The peak incidence of adenovirus disease was found to be proportionately greater and more severe in the winter than in the summer group, although the number of men developing adenovirus infection was almost the same in both.

ROLE OF STRESS WEIGHED

Since this high incidence of respiratory disease coincided with the initial adaptation of young civilian males to the apparently less attractive life of a naval recruit, it is tempting to view this stressful period as significantly undermining an individual's resistance to respiratory infection.

If stress does substantially contribute to this initial outbreak of disease, its effects should be sought for primarily in the unreported respiratory disease. The respiratory disease as observed in these two study groups was similar, not only with respect to weekly incidence, but also with respect to the average amount of disease sustained by each individual during summer and winter months. Apparently this is contrary to what would be normally expected. Nevertheless, although there was no quantitative difference between these illnesses, the disease experienced by the summer company was less severe as measured by the number of febrile responses.

ADENOVIRUS PLACE PARADOXICAL

Crowding during the colder months has often been invoked as a significant factor in the transmission of upper respiratory diseases and, to some extent, in its severity. Nevertheless, during the warmer months the activities of recruit training are not significantly altered so as to decrease the degree of crowding. Changes in temperature and

humidity have been shown experimentally to influence the prevalence of certain viruses, e.g., poliomyelitis and influenza. But with adenovirus the prevalence and type of infection were the same for both seasons, but the severity of illness varied.

The specific place of adenovirus infection in this recruit population is paradoxical. The mildness of the disease and its modest contribution to total respiratory illness belies the substantial role played by febrile adenovirus disease in reported illness.

The demonstration that previous illness not due to adenovirus apparently could enhance an individual's susceptibility accentuates the importance of studying the respiratory disease experience of an individual. The precise mechanism whereby some persons contract adenovirus infection while suffering from acute respiratory disease will require further study. The extent of the contribution of respiratory illness not of adenovirus origin in recruits to the high incidence of adenovirus infection in large recruit populations cannot adequately be answered from this investigation. Such an answer could possibly be forthcoming if it were possible to reduce significantly the incidence of the "nonspecific" respiratory disease with specific vaccine prophylaxis.

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ABDOMINAL REMOVAL OF CERVICAL STUMP
Indications and Technique

William B. Harrell, M.D.*

*Read at the Arkansas Obstetrical
and Gynecological Society
Little Rock, September 20, 1962*

The Problem

RECENTLY THERE HAVE BEEN several reports in the literature to indicate that the cervical stump problem will be with us for many years to come, even though the number of subtotal hysterectomies performed in most hospitals are decreasing each year.

Nettles and Brown,¹ at the University of Arkansas Medical Center, surveyed the records of the majority of hospitals in Arkansas and found that there are over 1,500 women in the state who have had subtotal hysterectomies during the past ten years. They further estimated that there are 4,000 women with cervical stumps in Arkansas alone at the present time, if those women who had subtotal hysterectomies prior to the past decade are included.

St. Michael's Hospital, located on the Arkansas side of Texarkana, is a 150-bed general hospital.

Our 10-year survey from 1952 through 1961 revealed that 820 total hysterectomies were performed and 60 subtotal hysterectomies were performed.

The Wadley Hospital, located on the Texas side of Texarkana, is also a 150-bed general hospital. In a similar review over a 10-year period from 1951 through 1961 we found that 1,102 total abdominal hysterectomies and 107 subtotal hysterectomies were performed. It is of interest that both hospitals are staffed by the same surgeons.

Symptoms and Treatment of Patients
With Cervical Stumps

As patients with retained cervical stumps reach the fourth or fifth decade of life they begin to be plagued with benign disease as well as cancer. Usually, the first symptom noticed is a mucocorpulent discharge. At times this complaint will not cause the patient to see a physician. Many times, however, the vaginal discharge will be accompanied by bleeding, and this so called danger signal will cause alarm and immediate consultation with a physician. Many of these patients will complain of backache and pelvic pain, and it is not uncommon to find vaginal relaxation, cystocele, rectocele, or even prolapse along with the diseased cervical stump.

Our advice to the patient with no disease present in the cervical stump is as follows:

- (1) Therapeutic deep conization to remove all glandbearing tissue as well as the squamocolumnar junction.

CERVICAL STUMPS IN TOTAL POPULATION

Geographical area:	Population:	Number of retained cervical stumps:
Texarkana	50,000	116
Arkansas	1,786,222	4,000
U. S. A.	179,323,175	400,030

*317 State Line Avenue, Texarkana, Arkansas.

INCIDENCE OF SUBTOTAL HYSTERECTOMY IN TEXARKANA

10 YEAR PERIOD FROM 1951 THROUGH 1961

Hospital	Total cases	Number total hyst.	Number subtotal	% Subtotal
St Michaels	880	820	60	7.3
Wadley	1,209	1,102	107	9.7
Total Texarkana	2,089	1,922	167	8.7

- (2) Routine follow-up examinations at six month intervals.

Maligancy should always be ruled out by cytology with multiple biopsy and conization performed when indicated. If these diagnostic procedures have been indicated, then this annoying cervix should be removed. If malignancy is present, Rutledge² feels that the cervical stump is a special problem in therapy that requires unusual tools and a different approach from the routine plan for carcinoma of the cervix with intact corpus. It is a more difficult problem for the radiotherapist and the surgeon. The therapist is hampered by partial loss of a receptacle for intercavitary radium therapy and of course the surgeon is faced with many added problems of which we are all well aware.

Incidence of Vaginal and Abdominal Removal of the Cervical Stump

Welch, Counseller and Malkasian³ at the Mayo Clinic reviewed the cases in which diseased cervical stumps were removed. During the 15-year period from 1940 through 1954 they found that removal had been accomplished by the vaginal route in approximately 77 per cent, and had been performed by the abdominal route in approximately 23 per cent.

In recent years, in our local hospitals, we have found that there has been an increase in the number of abdominal trachelectomies. This might be due to the fact that we have more basically trained abdominal surgeons than we do vaginal surgeons (additional influences also include: the improved antibiotics, and we now have a better understanding of shock and blood replacement, as well as more full time anesthesiologists.) In Texarkana we have one full-time anesthesiologist at the St. Michael's Hospital and two full-time anesthesiologists at the Wadley Hospital. Also, it appears that early ambulation, as well as better

postoperative care, have shortened the surgical convalescence.

Indications for Abdominal Removal of the Cervical Stump

Probably the most common indication for the abdominal removal of the cervical stump is associated adnexal disease. Many times the patient will be referred to the surgeon for adnexal disease such as ovarian cyst and the retained stump is removed incidentally.

If the patient with a retained cervical stump has any other intra-abdominal disease this patient should be subjected to abdominal exploration. One might expect a higher incidence of colon disease or gallbladder disease in this age group. Also we have had cases with adherent bowel attached to the cervical stump following prior surgery and this type case would certainly not be suited for the vaginal removal of the cervical stump.

An occasional patient is seen with a small or narrow vagina and, of course, this makes it impossible to satisfactorily remove the cervical stump vaginally. These patients are usually nulliparous women who have never experienced pregnancy or childbirth.

It is our opinion that any patient who has had a previous vesicovaginal fistula repair should always be subjected to the abdominal removal of the cervical stump. We feel that there will be less likelihood of causing a recurrent fistula. Usually there is a lot of scarring and fixation of the bladder, and this condition would make the vaginal approach more hazardous.

In our hands we feel that there is less likelihood of postoperative hemorrhage when the abdominal route is used. This is due to the fact that the surgeon has better vision of the operative field and can handle the structures in a more satisfactory manner. Hemostasis is usually better and a better pelvic floor can be constructed.

It is not uncommon now for a patient submitted to the abdominal approach to have a shorter hospital stay than the patients submitted to the vaginal removal of the retained cervical stump. There seems to definitely be a decreased incidence of urinary retention also.

Technique

With the patient in a supine position on the operating table the abdomen is prepared and draped in the routine manner. The old incision

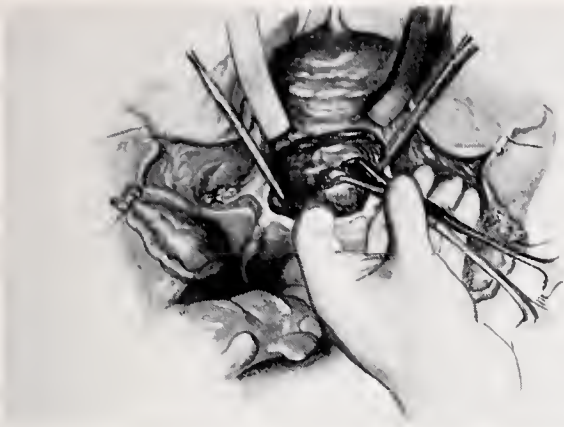


Fig. 1 — Abdominal removal of the cervical stump.

is dissected out and the incision is carried down through the subcutaneous fat and fascia and the peritoneum opened. On opening the peritoneum it is not uncommon to find many adhesions. If loops of small bowel are adherent to the abdominal wall, they should be freed before exploring the pelvis. There is usually a certain amount of scarring and adhesions about the cervical stump. Even though the bladder may be adherent to the anterior and superior surfaces of the cervical stump and the rectum to the posterior surface, it is not difficult to palpate the stump with the finger. By blunt and sharp dissection the structures are freed from the posterior surface of the stump and a towel clamp placed in the stump for traction. With adequate countertraction and sharp dissection the adherent bladder is separated safely and the dissection carried posteriorly into the posterior cul-de-sac. The uterosacral and cardinal ligaments are then identified, ligated and severed. Along with the uterosacral ligaments the cervical fascia is cut under the posterior peritoneum. With continued traction a horizontal stab incision is made into the vagina posteriorly just below the cervical stump. A finger is inserted into the vagina and placed against the cervix, pushing it upward. The cervical stump is then free of all attachments except the vagina and pubovesicle fascia anteriorly. The pubovesicle fascia is then incised and the bladder pushed down

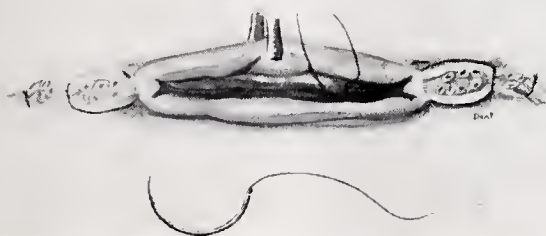


Fig. 2 — Angle suture with knot tied inside the vagina.

on the vagina. The posterior incision into the vagina is then carried around the cervix under direct vision and the vaginal cuff caught with several clamps so that it will not retract.

Angle sutures are then placed in each angle of the vagina, encompassing the medial one-third of the cardinal ligament, which has been previously ligated with a suture ligature. This angle suture is started inside the vagina by passing the needle through the posterior vaginal wall at the angle and then through the medial one-third of the cardinal ligament and back into the vagina through the anterior vaginal wall, tying the knot inside the angle of the vagina. With medial traction on this suture another ligature is passed through the uppermost part of the anterior

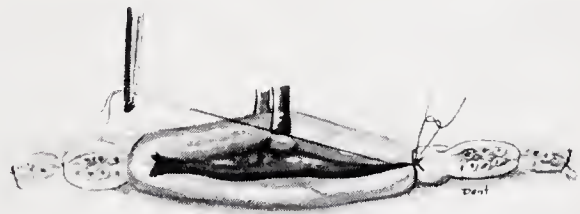


Fig. 3 — With medial traction on the angle suture a lateral lock suture is placed through anterior vaginal wall, angle tissue tuft and posterior vaginal wall.

vaginal wall at the angle and carried through the tuft of tissue bulging into the angle of the vagina (vaginal wall and part of cardinal ligament) and then through the uppermost part of the posterior vaginal wall at the angle. The knot is then tied on top of the vaginal cuff.

The original angle suture is then reversed and lateral traction applied, while another suture is passed through the anterior and posterior vaginal wall near the last suture, allowing the traction suture then to come up between the two sutures. This completes the angle lock suture technique, which we believe will prevent postoperative bleeding at the angle as well as insure good support.

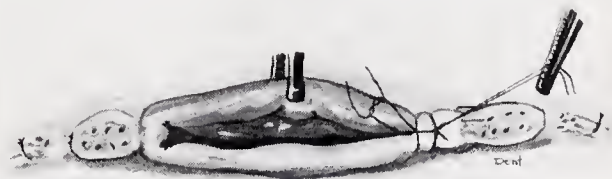


Fig. 4 — With lateral traction on angle suture a medial lock suture is placed through the anterior and posterior vaginal walls, completing the angle-lock suture technique on the vaginal cuff.

Interrupted sutures are then placed at intervals across the vaginal cuff and the uterosacral ligaments are then brought together posteriorly with two or three interrupted sutures. The pubovesicle fascia is closed in a separate layer above the cuff and the uteroversicle fold then brought down with a semi-purse-string suture to a point on the posterior vaginal wall just below where the uterosacral ligaments have been brought together.

Summary

1. A study of the retained cervical stump problem has been made, and we find that our community of 50,000 has approximately 116 women with retained cervical stumps who need medical attention. In the state of Arkansas there are approximately 4,000 women with retained cervical stumps and in the United States there are 400,030 women with retained cervical stumps.
2. With the exception of those patients who have

malignancies, the cervical stump should be coned or removed surgically.

3. The incidence of vaginal removal of the cervical stump has been estimated to be approximately 77 per cent and the abdominal removal approximately 23 per cent over a 15-year period at one of the larger medical centers.
4. The abdominal route for removal of the cervical stump is recommended for the majority of patients by the author, and the indications and operative techniques are described.

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MEDICAL ASPECTS OF THERAPY OF COMPLETE HEART BLOCK AND CARDIAC ARREST

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MANY IMPORTANT DEVELOPMENTS have appeared in the diagnosis and treatment of cardiac arrhythmias in the past decade. These have resulted from a combination of many factors including improved methods of diagnosis, increased knowledge of the cause, mechanism and precipitating factors tending to induce cardiac arrhythmias, improved information relative to the more scientific use of older anti-arrhythmic drugs such as digitalis, quinidine and isuprel and finally as a consequence of the use of new electrical devices in therapy.

In considering the treatment of complete heart block, it is worthwhile pointing out that therapy is often not indicated for the heart block per se as it is frequently not responsible for the symptoms. It is the potentiality of development of Stokes-Adams attacks which is a chief hazard and usual cause of death with complete atrioventricular block that requires the attempts at therapeutic control. These Stokes-Adams seizures may occur during a period of transition from partial to complete atrioventricular block and during the maintenance of the complete block. The patient may suffer during such episodes from dizziness, faintness or from loss of consciousness due to ventricular tachycardia, ventricular fibrillation, or a combination of both.

Treatment of the causative factor may result in the disappearance of the complete block, and this consideration requires accurate diagnosis of the underlying disease. The vast majority of the cases are due to coronary disease both chronic and acute, fewer are associated with hypertensive heart

disease and the minority are due to rheumatic heart disease and to digitalis toxicity. If a patient is on digitalis and quinidine, these medications should be stopped and if they are responsible for the heart block the rhythm will disappear fairly rapidly. This situation was illustrated in the electrocardiogram of a 68 year old patient with thrombophlebitis and pulmonary embolism which had occurred seven days before the tracing was taken. She had been digitalized at the time. Through most of the record, complete atrioventricular block was present interspersed with an occasional conducted beat from the auricle. Digitalis was stopped at that time. Three days later, incomplete atrioventricular block with Wenckebach phenomenon was present and about two weeks later, a normal sinus rhythm was evident.

Treatment is necessary not only for the acute attack but in order to prevent recurrent attacks. There are three major therapeutic approaches and these consist of pharmacologic, electronic and surgical methods. Since the subject of this paper constitutes medical aspects of therapy, pharmacological treatment will be chiefly discussed.

The chief sympathomimetic amines are ephedrine, epinephrine, and isoproterenol (isuprel). Others such as neosynephrine, norepinephrine, and metaraminol (aramine) have little effect on increasing the rhythmicity. There is general agreement that epinephrine can precipitate ventricular fibrillation in those cases in which the underlying mechanism is a form of ventricular acceleration. Conversely there is considerable

clinical and experimental evidence that isuprel will stimulate an active ventricular pacemaker without exciting lower ectopic foci. There is some disagreement with this point; Zoll and co-workers have shown experimentally that isuprel could produce ventricular fibrillation in dogs and that in human beings both drugs given intravenously showed an equal tendency to produce excessive acceleration or premature beats. Ephedrine is similar in action to epinephrine but not as powerful and is more useful in the continued management of patients with episodes of asystole. Actually, prevention of subsequent attacks depends upon the frequency with which they occur. If they are rare, therapy is not indicated. If frequent, sublingual isuprel in doses 10 to 15 mg. every 4 hours may be of value. In the past I have rarely fortified this preparation with a dexanymyl spansule one or two times a day with some success in patients prone to develop asystole on isuprel alone; perhaps its cerebral effect has been of benefit in those patients able to tolerate it.

Needling and irritating the myocardium with direct needle pricking may alone stimulate systole. During standstill the injection of isuprel or if not at hand, epinephrine directly into the heart is indicated. However, in a study carried out in 1945, I found that the greatest success with this type of therapeutic measure was first to needle the heart but this alone was usually not effective. The needle was then gradually inserted further so as to reach the point of drawing blood into the syringe and just at this time the needle was removed sufficiently to stop the withdrawal of blood and the plunger of the syringe pushed in with the medication. In this fashion it was assumed that the drug was injected directly in part into the myocardium or in other words, somewhat "intramyocardially".

Molar sodium lactate—was originally advocated for use in Stokes-Adams disease but it has been found to produce ventricular tachycardia and frequent extrasystoles and should not be used in cases of the disease due to ventricular acceleration. It is very transient in its effect and its use may be chiefly as a priming agent for the sympathomimeticamines since these latter drugs have experimentally a decreased effect in the presence of hyperkalemia and acidosis. (A disadvantage may be the high sodium load it may add to patients in congestive failure.)

Chlorothiazide was reported by Tobian to stop episodes of Stokes — Adams attacks in patients. In his first report, Tobian gave 7 patients enough chlorothiazide to lower the potassium at least 0.6 mEq. per liter. A good result was obtained when the plasma potassium went as low as 3.8 mEqs. per liter. Mild doses of chlorothiazide usually did not lower the plasma potassium sufficiently and in these instances, Stokes-Adams seizures were not prevented. Electrocardiographic tracings revealed several instances of decreasing heart block on the treatment. The most striking improvement was a change from complete heart block to normal sinus rhythm during the course of therapy. Tobian found that the beneficial effect of the chlorothiazide could be obtained with or without the use of supplementary sodium chloride but some patients have more energy when they are taking this additional sodium chloride along with chlorothiazide. An eighth patient was a failure although he was given as much as 2500 mg. of chlorothiazide without bringing his potassium level below 4.4 mEqs. per liter which demonstrated that when the drug does not lower the plasma potassium sufficiently it does not prevent seizures. According to Tobian, chlorothiazide changes the ratio of extracellular to intracellular potassium in the conducting tissue only about 15 to 20 percent but this may be enough to improve conduction, increase the safety margin and thereby prevent seizures.

Steroids—Adrenocortical steroids and ACTH have been reported to be effective in the treatment of complete heart block due to myocardial infarction, the theory being that in some cases the interference with atrioventricular conduction is due to inflammatory changes adjacent to the infarct and may be reversed by the anti-inflammatory effect on the steroids. They have also been used with benefit in several cases of Stokes-Adams disease due to chronic heart block. This effect may be due to loss of potassium since the ventricular pacemaker has been shown to be extremely sensitive and inhibited when there is an increase in potassium. We have encountered decreases in an idioventricular rate from 65 to 20 per minute with potassium levels of 8 mEqs. per liter or more.

In a 69 year old patient admitted to Barnes Hospital with history of syncopal episodes. The records showed complete atrioventricular block and in view of the subsequent record, a nodal

pacemaker was present with a right bundle branch block pattern. Various drugs were tried including isuprel with no sustained results. Then solucortel was given intravenously and the patient was continued on prednisone in doses of 30 mg. daily. The next day, 2:1 atrioventricular conduction alternating with 1:1 conduction appeared and subsequently sinus tachycardia with only a rare non-conducted beat resulted.

The leads of an electrocardiogram taken on a 63 year male with a twenty-four hour history of chest pain, showed evidence of a diaphragmatic myocardial infarction with complete atrioventricular block. Prednisone was given in doses of 40 mg. daily. The next day 2:1 atrioventricular block was present. Two days later sinus rhythm with prolonged atrioventricular conduction was evident as shown in lower two leads of the same figure.

It should be realized that this change in conduction can frequently occur spontaneously due to the time elapsing and improvement after an infarction. On the other hand an electrocardiogram taken on a patient 62 years of age with a developing diaphragmatic myocardial infarction and complete block with auricular fibrillation and nodal pacemaker, who appeared to be progressing nicely and then suddenly died. Perhaps steroid therapy may have helped. Caution must be expressed however about the use of this form of treatment because of complications that may ensue. Recently a 59 year old patient in our institution who had an anterior myocardial infarction received steroid therapy because of the presence of a complete atrioventricular block. He was placed on prednisone for 5 days with progressive improvement in his atrioventricular conduction when he suddenly suffered an acute perforation of a duodenal ulcer and almost died. Obviously much care must be exercised in these patients.

Quinidine and procaine amide — These drugs are contraindicated in the presence of complete heart block because they may produce irreversible ventricular asystole or may actually precipitate ventricular fibrillation. Digitalis is also usually contraindicated in patients who are subject to Stokes-Adams seizures during normal sinus rhythm and transient heart block since it is difficult to predict when the drug will cause stoppage of the ventricles in a labile state even though there is no effect during the so-called stable period.

Digitalis glycosides may augment the sensitivity of the carotid sinus mechanism sufficiently to cause ventricular asystole, especially if the patient is an elderly individual. *Atropine* occasionally will help in reducing some of these vagal effects. In this connection I am reminded of a 75 year old man who had trouble urinating; when he would strain he would suddenly develop complete heart block and suffer a syncopal episode. When a catheter was inserted in his bladder he did not have this difficulty. When the catheter was removed it recurred again. It was found that urecholine seemed to protect the patient; with its use he could void more easily without straining, and he would have no further difficulty with the arrhythmia.

In a susceptible patient of 69 years of age, lead strips recorded on several occasions during Stokes-Adams attacks exemplified a spontaneous occurrence of a shift from sinus tachycardia to heart block. There can be seen rapid sinus tachycardia with onset of complete atrioventricular block and prolonged ventricular standstill and finally appearance of atrioventricular nodal escape rhythm. Much the same sequence of events can be seen after a long period of atrial as well as ventricular standstill. This patient subsequently did well without therapy.

Occasional success at starting the stopped heart to beat has been attained by direct vigorous thumping of the chest just above the heart with an open hand or even with a closed fist. This has been effective a fair number of times from my own experience. Several months ago this procedure saved a 70 year old woman's life. She was driving with her husband from Chicago to Hot Springs when she developed an increasingly severe substernal pain as they passed through Springfield, Illinois. By the time they reached St. Louis the pain was severe. The husband drove to a motel on the outskirts of the city and a physician in that neighborhood was called. On arrival he merely placed a nitroglycerine tablet underneath the tongue and within a minute she collapsed and became pulseless. The physician immediately struck the chest with his fist several times with an occasional contraction resulting. In a minute or two the heart began to beat rapidly and regularly. He had an electrocardiograph apparatus along and took a tracing which we saw subsequently and it showed a nodal tachycardia. She was transferred to Barnes Hos-

pital and sinus rhythm was restored spontaneously by the time she arrived at the hospital. Subsequently she has done well with her acute anterior myocardial infarction.

Very recently a manipulation which has become increasingly popular and which represents a cross, so to speak, between medical and surgical therapy is closed-chest cardiac massage which gives adequate cardiac massage without thoracotomy. When sudden and unexpected cessation of cardiac activity occurs, the physician feels more helpless than in almost any other situation in medicine today. At the time it occurs in the physician's presence, in his office or in the patient's home, he is motivated to "do something" and may perform the usual manipulation of hitting the chest, needling the heart, giving an intracardiac injection of epinephrine or initiating artificial respiration but in the vast majority of cases these procedures are ineffectual. If the patient has a terminal disease no one is really regretful; however sudden cardiac arrest is not relegated to the infirm and chronically ill patient. It may occur in an apparently well person and we do know that sudden death can occur with little or no obvious pathologic evidence of coronary disease. Accidental death is very common; electrocution, drowning, suffocation from many causes occur daily. In these circumstances Jude has rightly stated that "the body needs only an opportunity to regain its equilibrium of balanced metabolism and spontaneity for a normal life to continue."

In recent years opening the chest and performing direct cardiac massage has become a too frequent procedure. In the operating room and recovery room this can be a properly carried out procedure but it is practically always a catastrophic step in any other environment and has been performed without due regard to the fact that the heart may still be beating although very faintly. In one series of cases reported in 1960 only one patient actually recovered in 25 such attempts at resuscitation. In contrast, closed chest cardiac massage provides a valuable technique of restoring the circulation if there is such a potentiality without the dread consequences of this operation. The physician now has a means of performing a service in any environment which may lead to the restoration of life.

The use of this procedure on various series of patients has resulted in the survival rate of 70

percent. With two hands anyone can initiate this cardiac resuscitative procedure. The heart is limited anteriorly by the sternum and posteriorly by the vertebral bodies. Its lateral movement is restricted by the pericardium. The pressure on the sternum presses the heart against the spine forcing the blood out. Relaxation of the pressure allows the heart to fill. The thoracic cage in unconscious, unanesthetized adults is surprisingly mobile. With the patient in a supine position and preferably on a rigid support, the heel of one hand with the other on top of it is placed on the sternum cephalad to the xiphoid process. Firm pressure is applied vertically downward about 60 times per minute. At the end of each pressure stroke, the hands are lifted slightly to permit full expansion of the chest. Sufficient pressure should be used to move the sternum 3 or 4 cms. toward the vertebral column. If a second person is available, one should massage the heart in this fashion while the other gives mouth to mouth breathing while keeping the nostrils of the patient closed. This procedure is being applied to an increasing number of patients, with resuscitation of many of them along with occasional help from the use of the external defibrillator-shock method, when ventricular fibrillation ensues in the course of the manipulation.

There are some specific steps to be considered in this technique of external cardiac resuscitation. While this procedure is being done, the patient should be observed for recurrent or spontaneous cardiac action every three minutes or so. Injection of 3 to 4 cc. of 1:10,000 epinephrine or isuprel 0.2 mgm. by the intracardiac method should be instituted if there is no spontaneous activity after three minutes. If a patient is out of the hospital and it is possible to transfer the patient to such an institution, it should be done although artificial respiration and massage should be continued during transfer. An electrocardiogram is essential to check on the type of cardiac arrest such as asystole or ventricular fibrillation. If the latter is present then the external defibrillator should be applied. Then if weak action occurs, the injection of 5 to 10 cc of 10 percent calcium chloride by intracardiac or intravenous method should be performed. If possible the acidosis should be reversed with 4.5 grains (44.3 mEq) of sodium bicarbonate intravenously if cardiac arrest persists over 5 minutes. This may need to be repeated at 10 minute intervals if arrest continues. Then

200 mg. of pronestyl may be given very slowly by intracardiac or intravenous method if necessary to decrease myocardial irritability and to maintain defibrillation. In the meantime external massage and artificial respiration should be continued until there is spontaneous blood pressure and ventilation response sufficient to maintain the patient. It is desirable to have fluids infused and if necessary a venous cutdown preferably of the saphenous vein should be instituted. If the blood pressure is not being maintained, then vasopressors such as norepinephrine, isuprel or metaraminol should be used. If there has been much difficulty restoring function, post-resuscitation artificial respiration and hypothermia may be indicated. The most important point to be kept in mind is that we should alleviate the cause of cardiac arrest by diagnosing and treating the inciting disease process early.

If it appears that it is likely that a repetition of the Stokes-Adams attacks will occur, consideration should be given to the implanting of a transistorized self-contained pacemaker for the long time correction of complete heart block. To accomplish this of course will involve a surgical measure, but this technique has become so well established and so successful that there should be very little hesitancy about arranging for this implantation with recurrent episodes of Stokes-Adams attacks. The prognosis of the disease is so bad and the implantation of this pacemaker as a rule so beneficial, it is logical to advise that the physician in charge should not delay in taking this step when it is indicated.

Summary

In summary, one can say that there have been many developments in the diagnosis and treatment of heart block and cardiac arrest in the past decade. These have resulted in good part from the increase in knowledge relative to the use and development of new drugs. However the greatest advance has been in the amplification and use of monitory devices and in the employment of electrical equipment to defibrillate the heart and to increase cardiac rhythmicity.

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CLINICAL PROBLEMS IN OBSTETRIC SHOCK

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OBSTETRIC COMPLICATIONS WHICH cause a decreased circulating blood volume, a decreased cardiac output, and peripheral circulatory collapse produce the syndrome of obstetric shock. In the practice of obstetrics, the most serious and the most frequent emergency confronting the physician is obstetric shock.

There has been a marked decrease in the maternal death rate and a significant reduction in the maternal complications during the past twenty-five years. The three major causes of maternal mortality, i.e. toxemia, hemorrhage, and infection, have been the objects of intensive clinical and basic research. Prenatal care, improved nutrition, and controlled diets have reduced the incidence of toxemia of pregnancy. The etiology of toxemia is unknown, but with a better understanding of the clinical features of the illness, the physician has been able to treat the disease more effectively by the use of low sodium diets, diuretics, and antihypertensive drugs. In pregnancies complicated by hemorrhage, the major advancements have been the universal establishment of blood banks and the increased frequency of hospital deliveries. Antibiotic therapy has reduced the infectious hazards in the pregnant patient. Anaerobic infections remain an enigma. The contributions of the interested and trained obstetrician, the education of nurses and ancillary personnel, and the improved hospital facilities must be appreciated and shall require additional emphasis in the years to come. Maternal and child health, particularly as it concerns maternal and perinatal mortality, presents one of the great challenges in practice and research in this the second half of the twentieth century. The etiology and management of obstetric shock creates an important question in this area of investigation. It is of interest that for the first time in standard obstetric texts, Reid¹ has

devoted an entire chapter entitled "Shock, Coagulation Defects, and Acute Renal Failure."

Cardiovascular Changes in Pregnancy

Adams² demonstrated a 22 per cent increase in plasma volume, a 32 per cent increase in cardiac output, and a decrease in circulation time. The maximum increase in cardiac output is evident at approximately twenty-eight weeks gestation and gradually diminishes to normal as the patient approaches term. Holly³ reported that 80 per cent of pregnant patients exhibited a decrease in hemoglobin, erythrocyte count, and hematocrit values and emphasized that in most instances the anemia represented a correctable iron deficiency. Reid⁴ stated that clinical signs of shock from blood loss often do not occur in a healthy obstetric patient until she has lost 30 to 35 per cent of her blood volume, equivalent to approximately two liters. The elevation of the patient's legs in stirrups for delivery and the classic underestimation of blood loss during delivery undoubtedly contribute to the profound shock frequently noted when the patient is returned to the supine position.

The most valuable compensating factor must be the healthy cardiovascular system of the young female.

Diagnosis and Chemical Discussion

In the literature of recent years, some authors have restricted obstetric shock to non-hemorrhage causes that produce peripheral vascular collapse and patient deterioration. This limitation seems unwarranted in view of the infrequent occurrence of syndromes as amnionic fluid infusion and septic shock without trauma and hemorrhage. First and foremost, the clinician should consider shock in the obstetric patient as due to blood loss and trauma. For practical purposes, the etiology of obstetric shock may be considered in two categories: (1) hemorrhagic and traumatic, Table I; (2) non-hemorrhagic, Table II.⁵

TABLE I. OBSTETRIC SHOCK
Hemorrhagic and Traumatic Causes

Abortion	Operative delivery
Hydatidiform mole	Rupture of the uterus
Ectopic pregnancy	Postpartum hemorrhage
Placenta previa	Inversion of the uterus
Premature separation of placenta—hypofibrinogenemia	

Abortions associated with shock nearly always are due to hemorrhage, infection, and trauma. Criminal abortions, in addition, may have the associated factor of a toxic abortifacient. In maternal mortality studies, criminal abortions account for 5 to 10 per cent of maternal deaths, and the unreported deaths are legend.

Ectopic pregnancies occur with the same frequency as in past generations, and despite the availability of blood transfusions, the maternal death rate has not declined in keeping with the over-all improvement from other causes. In the North Carolina Maternal Welfare Committee studies, of the first 1,000 deaths (1946-1951) ectopic pregnancies accounted for 33 patients. In the second 959 deaths (1951-1956) ectopic pregnancies accounted for 34 patients.⁷ In almost all patients, death could be attributed to a delay in diagnosis, shock, and inadequate blood replacement.

In the third trimester of pregnancy, *placenta previa* and *premature separation* of the normally implanted placenta are the most frequent causes of bleeding and shock. Abruptio placenta may produce a massive concealed retroplacental hematoma. If the blood dissects into the myometrium, shock may occur out of proportion to the loss of blood. If the patient is hypertensive, there may be a delay in diagnosis of shock because of the assumed normotensive blood pressure levels.

A problem of special interest in abruptio placenta is the development of coagulation defects. These may be detected by clinical evidence of hemorrhagic diathesis and should be anticipated by serial clot observation tests and fibrinogen determinations.

The worst form of obstetric shock often is seen in *traumatic operative* deliveries performed on poor risk patients. Difficult forceps, breech extractions, version and extractions, and cesarean sections frequently are done under makeshift anesthesia on patients who already are depleted by prolonged labor, dehydration, anemia, and infection. Hemorrhage leads to "irreversible" shock.

Rupture of the uterus in the third trimester of pregnancy is a devastating cause of shock and is accompanied by external and internal hemorrhage. Of 31 patients with ruptured uteri studied by the author, there were five maternal deaths. The early signs and symptoms of rupture of the uterus, which make possible a diagnosis and operation before catastrophic expulsion of the fetus into the abdomen, are those of early shock. Astute clinical judgment is essential in the early diagnosis of a ruptured uterus.⁶

Blood loss and shock due to *postpartum hemorrhage* caused by uterine atony, retained secundines, and soft tissue lacerations may produce profuse external bleeding. A more dangerous component of postpartum hemorrhage is the slow continuous ooze that leads to unsuspected profound circulatory collapse.

TABLE II. OBSTETRIC SHOCK
Non-Hemorrhagic Causes

Infection	Myocardial infarction
Amniotic fluid embolism	Cardiac failure
Adrenal insufficiency	Anesthetic accident
Low sodium syndrome	Ruptured aneurysm
Supine (postural) hypotension	Incompatible blood transfusion

The causes of non-hemorrhagic obstetric shock are listed in Table II. Whereas these syndromes that produce shock without blood loss are relatively infrequent in occurrence, they must be considered to be diagnosed.

Septic shock is the most important cause of non-hemorrhagic vascular collapse. Infection frequently follows trauma and hemorrhage. Shock may be related to hypovolemia, bacterial toxins per se, and hemolysis, notably with the Clostridia. The cause of shock in these patients often is poorly understood. Studdiford and Douglas⁷ and McKay et al.⁸ have emphasized the endotoxins, particularly associated with coliform bacteria, as a causative factor and as an important consideration in the therapy of septic shock. Susceptible patients are those who have criminal abortions and those who have prolonged labors with ruptured membranes. The patient appears acutely ill and severely toxic. She exhibits clinical evidence of shock out of proportion to blood loss. The tachycardia and hypotension do not respond to intravenous fluids and blood. Urine output is scanty and may be bloody. A clotting defect can develop due to the formation of fibrin thrombi, increased fibrinolytic activity, and

plasma fibrinogen depletion.

Amniotic fluid embolism (infusion) should be considered when a healthy patient in active labor suddenly develops acute respiratory distress, cyanosis, pulmonary edema, and shock. Predisposing factors are precipitous labor in a multipara and Pitocin stimulation after rupture of the membranes. Cardiac failure, myocardial infarction, and an anesthetic complication are considered in the immediate differential diagnosis. If the patient survives the initial pulmonary catastrophe, it is likely that she will develop a clotting defect. Defibrination of the blood occurs because of the infusion of thromboplastic substances into the venous sinuses of the uterus.

Shock due to *adrenal insufficiency* may be encountered with the stresses of labor and delivery in patients who previously have had cortisone drugs. The clinical features are nausea and vomiting, weakness, hypotension, and vascular collapse. Addison's disease, Cushing's syndrome, pheochromocytoma, and postadrenalectomy hypoadrenalism have been reported as causes of the shock syndrome in obstetric patients.⁹

In toxemia of pregnancy, postpartum vascular collapse may be due to the *low sodium syndrome* described by Tatum and Mulé¹⁰ The induced salt depletion and the increased serum potassium create an acute crisis. The patient responds to intravenous saline.

Postural shock due to the weight of the pregnant uterus on the vena cava will develop in approximately 10 per cent of pregnant patients if they lie in a supine position on a hard surface.¹¹ The syncopal symptoms are relieved immediately when the patient turns to a lateral position.

Anesthetic accidents as a cause of obstetric shock occur principally when the physician supplies in the role of anesthesiologist as well as obstetrician. Inhalation anesthesia poorly administered to a patient with a full stomach invites vomiting, aspiration, pulmonary edema, shock and death. Spinal and caudal anesthesia given without proper supportive measures and in the absence of trained personnel lead to hypotension, vascular collapse, fetal wastage, and maternal death. The only safe anesthesia administered in an emergency and without the aid of an experienced anesthetist are pudendal block and local infiltration.

TREATMENT

The treatment of obstetric shock is directed toward the prevention of fetal and maternal deaths and the avoidance of the devastating sequelae as acute renal failure and/or Sheehan's syndrome.

The responsibilities of therapy involve patient, hospital, nurses and ancillary personnel, and physician.

Lack of education and poor socio-economic status predispose the patient to no prenatal care, malnutrition, anemia, criminal abortion, infection, home delivery, and obstetric complications that create shock.

The hospital administration must recognize that patient census will fluctuate from empty beds one day to overflow the next day. The complement of trained personnel and the equipment must be ready at all times for "the emergency." A good blood bank with an adequate supply of type O, Rh negative blood is mandatory. Fibrinogen should be stored, and if the cost is prohibitive for one hospital, a pool should be established with other hospitals in the community. A laparotomy pack in the delivery room is essential to avoid the potentially fatal delay of one to three hours for access to an operating room. Anesthesia coverage for the delivery room is the responsibility of the hospital. A continued educational program for attendants is desired.

The duties of the physician in the treatment of obstetric shock are threefold: (1) prevention; (2) early recognition and accurate diagnosis; and (3) immediate and active therapy.

The accepted concept of prenatal care is not universally practiced. Preventable anemia, toxemia, and delay in diagnosis of hemorrhage can be obviated with good prenatal care. Iron is the only essential prenatal supplement in the presence of a balanced diet. If the patient begins labor with a hemoglobin of less than 10.0 grams, blood should be typed and crossmatched. If her hemoglobin is less than 9.0 grams, she should be transfused before delivery. Blood loss is inevitable, and properly matched transfusions are less dangerous than shock.

In obstetric hemorrhage, there is no substitute for whole blood replacement. Established principles in treatment are listed as follows:

(1) Type and crossmatch all patients who might be expected to require transfusion.

(2) Transfuse with whole blood until effective blood volume is replaced.

(3) In massive hemorrhage, transfuse under pressure. (A 10 cc. syringe and a three-way stop-cock make an effective pump.)

(4) Do not depend upon vasopressor drugs since they mask blood volume deficiency.

(5) Provide supportive measures as shock position and positive pressure oxygen. The undelivered obstetric patient is more comfortable in the lateral Sims position.

(6) Avoid overloading with fluids in suspected myocardial infarction, congestive failure, acute renal failure, central nervous system damage, and unexplained irreversible shock.

(7) Hematocrit and blood volume studies are helpful in patients with prolonged bleeding who require multiple transfusions.

(8) Obtain expert anesthetic consultation.

(9) Anticipate and check for coagulation defects in patients with massive premature placental separation, in patients with fetal death in utero, in patients with suspected amniotic fluid infusion, and in patients with intrauterine infection. If the clot observation test or fibrinogen determination indicate hypofibrinogenemia, give fibrinogen intravenously in 2.0 gram increments until the clot becomes normal. Whole fresh blood collected in plastic bags is administered concomitantly.

Therapy in bacterial endotoxic shock is directed to maintenance of blood pressure, to treatment with antibiotics, and to evacuation of the uterus. Uterine and blood cultures are obtained. Transfusions are given when indicated by history of blood loss and by laboratory studies. In the presence of vascular collapse without evidence of blood loss or without response to blood replacement, vasopressor drugs, as norepinephrine, have proved invaluable. Cortisone is given if there is evidence to support pituitary or adrenal damage. In the absence of a specific culture report, the antibiotics of choice are massive penicillin therapy, 40 to 60 million units intravenously per 24 hours, and Chloramphenicol, 2.0 to 4.0 grams intravenously per 24 hours. If the patient does not respond to this plan of treatment within the first few hours, the focus of infection within the uterus must be removed by intravenous drip Pitocin, or dilatation and curettage, or hysterectomy. Shock

or a fluctuating vasomotor response persisting longer than 12 to 24 hours indicates a grave prognosis for the patient.

The treatment of amniotic fluid infusion is supportive oxygen therapy and vasopressor drug infusion during the respiratory distress and initial shock phase. Whole blood transfusions and fibrinogen are administered to combat the hemorrhage and coagulation defects.

Acute adrenal insufficiency is satisfactorily treated by immediate substitution with water soluble hydrocortisone succinate (Solu-Cortef) 100.0 mg. or more in 1000.0 cc. of 5 per cent dextrose in water administered intravenously as a constant drip over a period of six hours or less. Cortisone compounds are given concomitantly and daily in the equivalent dosage of 100-200 mg. of cortisone throughout the stress period. ACTH stimulation may be necessary with the gradual withdrawal of the cortisone.

Sequelae of Obstetric Shock

There are two major sequelae of obstetric shock: (1) acute renal failure; (2) anterior pituitary necrosis (Sheehan's Syndrome).

Acute renal failure is diagnosed when the urinary output is 400 cc. or less per 24 hours. The fluid intake must be restricted rigidly in order to prevent overhydration. Acute pulmonary edema is the cause of death in the early oliguric phase of acute renal shutdown. Parker and associates¹² have reported in detail the management of acute renal failure in the obstetric patient.

Sheehan's syndrome¹³ is first recognized by a failure of the patient to lactate and subsequently by amenorrhea, thyroid and adrenal deficiencies. The development of pan-hypopituitarism may be sudden in massive necrosis and gradual in partial necrosis of the gland.

Summary

Obstetric shock is shock in a patient who is pregnant or who is in the immediate puerperium.

Complications characterized by hemorrhage, trauma, and infection are emphasized as the major causes of obstetric shock.

Current established therapies in shock due to hemorrhage, sepsis, amniotic fluid infusion, and adrenal insufficiency are reviewed.

Obstetric shock is the true emergency in the practice of obstetrics.

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WHAT'S NEW?



MESENTERIC THROMBOSIS

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MESENTERIC THROMBOSIS IS A RELATIVELY uncommon disease. Unfortunately, the average practitioner does not see a sufficient number of cases to accumulate as much experience as is needed to satisfactorily handle this condition.

It is a formidable diagnostic and therapeutic problem. The mortality rate remains in the neighborhood of 70 per cent. The onset can be insidious, but it can also be one of the most rapidly progressive of the abdominal emergencies.

The fulminating cases present the physical signs of a most severe peritoneal insult and the surgeon will have no just cause for hesitation in operating. The high mortality in such cases is due to the extent of the disease and not to any delay in diagnosis.

In some instances the disease process may develop in a much slower manner over the course of a few days. In such instances the pathological process likely begins as a small thrombosis and slowly progresses until the fully developed pathological condition is reached.

In those cases where the mesenteric thrombosis progresses slowly, the repeated attacks of severe abdominal pain followed by improvement for short intervals would indicate acute episodes of partial ischemia, followed by relatively normal blood supply. This may occur over a period of several days before the final catastrophic episode.

There are numerous diagnostic aids which will help to arrive at the correct diagnosis. The one single most important diagnostic point is the presence of markedly severe abdominal pain without entirely adequate explanation. Of course, it is impossible to measure this symptom as it is

subject to marked individual variation, but the presence of cramp-like, markedly severe, intermittent abdominal pain out of proportion to physical findings should make the practitioner think of mesenteric thrombosis.

True, the patient may have a leukocytosis and fever, but there may be a lack of positive x-ray findings. Aortography to evaluate the potency of mesenteric and celiac arteries might be of some benefit.

It is possible that peritoneal aspiration with recovery of foul smelling bloody ascitic fluid would aid in the diagnosis.

Two courses are open at surgery. The surgeon in certain cases could choose to do an embolectomy or endarterectomy. However, if the disease process is well developed, it would most likely be better to do a bowel resection. The endarterectomy or embolectomy would require an earlier diagnosis but stands the chance of leaving a more normal individual. Certainly, it is the treatment of choice when possible. Such patients should be carried on anticoagulants thereafter.

Once the disease has progressed to frank bowel gangrene, the only solution is resection. All too often this resection has to be very extensive and by now the patient is almost moribund and so the result is fatal or leaves the individual a severe nutritional problem.

Early diagnosis, followed by early treatment, can drastically alter the course of this disease. It is well to bear the diagnosis of mesenteric thrombosis in mind in instances where the abdominal pain is out of proportion to the physical signs present.

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TEACHING SEMINAR

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THE USE OF ANTI-INFLAMMATORY STEROIDS IN THE RHEUMATIC AND COLLAGEN DISEASES

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A DECADE OF EXPERIENCE WITH THE active principle of the adrenal cortex (or synthetic derivatives) has created a multiplicity of uses and misuses of these potent hormones. The use of cortisone by Hench¹ in acute rheumatic fever (1949) and the resulting dramatic response of these patients provided the precedent for using the anti-inflammatory steroids in many human disease states. It is the purpose of this paper to outline some of the principles of adrenocortical hormone therapy and discuss their efficacy in the various rheumatic and collagen diseases. The impressions expressed have been acquired through the author's management of these diseases in association over the past ten years with Drs. Vincent Kelley and Robert Ely at the University of Utah and Dr. Theodore Panos at the University of Arkansas. The facts presented are obtained from the literature as cited.

Rationale

Perhaps a sufficient rationale for the use of steroids in these diseases is: to prevent the permanent residual damage which results from the acute inflammatory stage(s) characteristic of the rheumatic and collagen diseases. The physician has no more potent and consistently reproducible anti-inflammatory substance in his present day armamentarium than the adrenal

steroids. The above rationale is in essence a statement of one of the physiologic functions of the adrenal cortex; this function is that of homeostasis and maintenance of the connective tissues². The beneficial effect of therapeutic doses of steroids on the capillary endothelium and the cellular phase of inflammation in these diseases would appear to be only an exaggeration of this normal function, i.e., to return the connective tissue to normalcy.

A second property of steroids which may be cited as rationale is: the suppression of antibody formation³. "Auto-immunity" has been considered in the etiology of all of these diseases; this remains conjecture but it would appear that much of the expression of the clinical syndrome in systemic lupus erythematosus (S.L.E.) is due to auto-antibodies⁴. The treatment of S.L.E. appears at this time to be more successful using massive doses of steroids; doses which may suppress antibody formation. Application of this line of reasoning to other rheumatic or collagen diseases is purely speculative.

There is precedent for two other rationales in the use of adrenal steroids: (1) Replacement therapy as in Addison's disease (2) Suppression of abnormal adrenocortical secretion as in the adrenogenital syndrome. There is no evidence

Table I.
RELATIVE BIOLOGICAL EFFECTS OF CORTICOSTEROIDS

<u>Steroid</u>	<u>Anti-inflammatory Effect</u>	<u>Carbohydrate Effect</u>	<u>Sodium Retention</u>
Cortisone	1	1	1
Cortisol	1.25	1.25	1.25
Prednisolone ($\Delta 1$)	3-5	3-5	0
6 α -methylcortisol		2	0
9 α -fluorocortisol	10-15	10-15	300-900
2 α -methylcortisol	4-5	4-5	80-100
2 α -methyl- 9 α fluorocortisol		9	1000-2000
DOCA	0	.01	30-50
Aldosterone	0	0.3	300-900

Table I.
Derivatives of cortisol (hydrocortisone) are listed with cortisone, desoxycorticosterone (DOCA) and aldosterone for comparison. The effect expressed is that produced by one milligram of each of the compounds relative to the effect produced by one milligram of cortisone which is arbitrarily assigned the value of one. Data from Nelson (8).

Table II.
Derivatives of prednisolone with cortisol, DOCA, and aldosterone are listed for comparison. Data from Nelson (8).

Table II.
RELATIVE BIOLOGICAL EFFECTS OF CORTICOSTEROIDS

<u>Steroid</u>	<u>Anti-inflammatory Effect</u>	<u>Carbohydrate Effect</u>	<u>Sodium Retention</u>
Cortisol	1.25	1.25	1.25
Prednisolone	3-5	3-5	0
9 α -fluoroprednisolone	15-18	50	300-900
9 α -fluoro-16 α hydroxyprednisolone	3-5	4-6	0
9 α -fluoro-16 α methylprednisolone	25	25	0
DOCA	0	.01	30-50
Aldosterone	0	0.3	300-900

that a state of adrenocortical insufficiency exists in rheumatic or collagen diseases similar to Addison's disease. On the other hand, there is considerable evidence that there exist definite alterations of adrenal secretion and metabolism in these patients^{5,6}. The excretion of 17-OH corticosteroids (17-OHCS, cortisol and its metabolites) is low during the active phase of the disease and the plasma 17-OHCS are low after the acute phase in untreated patients. Blood ACTH and corticosterone are high after the acute phase and the rate of metabolism (plasma half-life) of both cortisol and corticosterone are prolonged. That these alterations are a result of rather than related to the etiology of the rheumatic and collagen diseases would seem to be the most appropriate interpretation of these findings at this time. Whether suppression of the patient's adrenal secretion is of importance must remain speculative. It has been noted however, that as little as 25 mgm. of cortisone given exogenously provides relief in a rheumatoid patient; this amount is equivalent to the patient's own basal adrenocortical secretion but the patient has symptoms when his own adrenal is the source of supply.

Principles

Since impressions are much more abundant than facts in the steroid therapy literature, the following discussion represents primarily guidelines which have provided our clinics with favorable results and a minimum of life-threatening complications.

Indications: The diagnosis of rheumatic or collagen disease is not a sufficient indication for steroid therapy. Neither does the institution of steroid therapy provide replacement for other supportive measures such as diet, adequate rest, physical therapy, etc. Steroids are indicated when systemic and/or vital organ involvement with the inflammatory process threaten permanent loss of function. Examples are carditis in rheumatic fever, arthritis with immobilization in rheumatoid arthritis, glomerular damage in S.L.E. or nephrosis, the skeletal muscle destruction in dermatomyositis, etc. Adrenocortical steroids are indicated primarily to inhibit the inflammation and fibroblastic proliferation at these vital sites but likewise provide striking symptomatic relief for the patient.

Preparation: Adrenocorticotrophic (ACTH) produces a qualitatively different response than

administration of the pure compounds available but it is difficult to cite any evidence that ACTH provides a preferred means of therapy. The *cortisol produced by the human adrenal is the active anti-inflammatory principle after ACTH administration and since pituitary and/or hypothalamic suppression is the key defect after long term steroid therapy, the use of ACTH does not eliminate suppression of these sites⁷. Therefore, there is no good reason to use ACTH which must be administered parenterally.

Which of the available anti-inflammatory steroids are to be preferred? Table I lists the synthetic derivatives of cortisol and compares their anti-inflammatory, carbohydrate and sodium retention properties in biological assay systems⁸. It must be understood that these comparisons only express the potency of the compound of a *milligram* basis in the particular assay system being used; the effect produced is not better, i.e., not qualitatively different with regard to anti-inflammatory response. Thus, 3-5 mgm. of cortisone will provide identically the same anti-inflammatory response as prednisolone (or prednisone) the 1 derivative of cortisone. However, it can be seen in the sodium retention column that prednisolone has zero (in this assay system) potency compared to that of one for cortisone. Careful examination of this table and Table II⁸ reveals that elimination of the sodium retaining property of cortisol (i.e., prednisolone) is the only pertinent dissociation of these major effects which has improved therapeutic efficacy of steroids an anti-inflammatory agents. Although the 9-fluoro-16 methyl derivative of prednisolone (Dexamethazone) is more potent milligram for milligram than the parent compound, it provides no dissociation from the metabolic potency (carbohydrate effect) which is likewise increased 25 times. No derivative has been produced which provides *greater inflammatory* potency with less metabolic effects, this latter property being primarily responsible for the pernicious side-effects of steroid therapy. One must pay a price when a new derivative is used in place of cortisone or prednisolone, not only in dollars but also in new and different side effects.

At present, cortisone and prednisolone (or prednisone) provide all the available advantages of derivative research. Hydrocortisone (as the

* Hydrocortisone (official pharmaceutical name) is identical to cortisol, the term in current usage in the biochemistry and physiology literature.

phosphate or succinate) provides a most suitable preparation for intravenous therapy. Prednisolone is preferable to cortisone when large doses (100 mgm or more) are contemplated or sodium retention is undesirable (congestive failure or nephrosis).

Route of Administration: (9) Both prednisolone and cortisone are rapidly and completely absorbed from the G. I. tract. Cortisone (as the acetate) can be given intra-muscularly if vomiting precludes oral administration. Since cortisone acetate is absorbed slowly over 24 hours on I. M. injection, it is preferable to administer hydrocortisone phosphate intravenously if high doses are needed rapidly in a life-threatening situation. When intra-articular administration is desired, hydrocortisone acetate is as satisfactory as any preparation.

Dosage and Duration of Therapy: Fastidious observation of the patient with meticulous regard for the amount of steroid necessary to favorably alter the course of the disease cannot be over-emphasized. Every individual patient has a different requirement depending on the disease and the severity at any particular time. Caution in this regard and observation for undesirable side effects produces gratifying therapeutic results with essentially no life-threatening complications.

Table III lists dosage of the four compounds felt to be most useful and which incorporate all of the available properties desirable in the treatment of rheumatic and collagen disease. The arbitrary designation of minimal, low and maximum are not to be taken as *the dose* to use; they only serve as orders of magnitude to consider after it has been decided adrenal steroids are indicated and the severity of the disease in the particular patient has been estimated.

It is preferable to choose a dose which will rapidly (7-10 days) produce a clinical remission rather than begin with low doses and "creep" up on the disease process. When the disease process is suppressed clinically, the dose should be tapered carefully over many weeks using laboratory data as guides. Such data as the erythrocyte sedimentation rate (ESR), albumin/globulin (A/G) ratio, urinary protein, BUN, EKG, and creatine excretion and clearance are useful in this regard. Tapering to 50 per cent of the original dose can be done rapidly (10 to 15 days) in the usual case: further decreases of 5-10 per cent per week of the existing dose will readily establish the desirable dose for an adequate clinical and laboratory response, depending on the particular disease (see under specific diseases below).

The duration of therapy depends on the disease

Table III. SUGGESTED BEGINNING DOSE

<u>Agent</u>	<u>Route</u>	<u>Schedule</u>	<u>Low or Minimum</u>	<u>Usual</u>	<u>Maximum</u>
Cortisone Acetate	P.O. or I.M.	q. 6-8 hrs.		200 (4)	
		q. 12-24 hrs.	50 (1)	300 (10)	2,500 (50)
Prednisolone	P.O.	q. 6-8 hrs.	10 (.2)	60 (2)	500 (10)
Hydrocortisone Phosphate	I.V.	Drip	100 (2)	300 (10)	1,000 (20)
Hydrocortisone Acetate	Intra-articular	prn		10-50*	

Table III.
The dosages listed are in milligrams per 24 hours and are for adults. The number in parenthesis is the milligram per kilogram dose for children (under 12 years). Cortisone is administered every 6-8 hours p.o. or every 12-24 hours if given I. M.

*Dependent on size of joint.

process in the individual patient. This is usually a minimum of 3-4 months and may extend into years. Therapy may have to be resumed and short courses of suppression, with discontinuation of the steroid allowing periods of flare-up, will result in less satisfactory preservation of function than continued suppression of the disease with the minimum adequate dose.

Complications: There are no absolute contraindications to steroid therapy *provided* the physician is aware of other existing diseases in the patient and proper therapy of these diseases has been instituted. Particular attention should be given to tuberculosis (or other infections), diabetes, peptic ulcer, hypertension, osteoporosis and mental instability. Prophylactic antibiotics have no place in the usual steroid regimen other than the recommended prophylaxis of streptococcal infection in rheumatic fever. Ulcer regimens, anabolic agents (androgens and estrogens or their analogs), and even isoniazid therapy have been suggested as routine parts of adrenal steroid therapeutic programs. However, a more reasonable approach would appear to be institution of additional therapeutic measures as the individual patient demands.

A low sodium diet is not used, particularly in the edematous patient. This only stimulates aldosterone secretion with more avid retention of the excess sodium which is already aboard in these patients. Potassium supplementation (1-5 gram/day) is routinely provided but is probably unnecessary in the majority of cases.

When complications do occur, regardless of type, the steroid dosage should probably *not* be decreased and should *never* be discontinued. It is imperative to administer steroid because the patient's own adrenal glands are suppressed and his only source of these necessary hormones is his physician. If the situation appears to be life-threatening, the steroid dosage should always be *increased*.

As previously stated, careful observation of the patient and determination of an individual dose for each patient with continued re-evaluation of this dose as time progresses will practically eliminate life-threatening episodes while providing satisfying therapeutic results.

Specific Diseases

The purpose of this paper is not to compare the merit of adrenal corticosteroids to other modes

of therapy in these various diseases, but to discuss their use when the physician has decided they are indicated. However, certain comments will be made in this regard when considered appropriate. A recent monograph discusses this problem in more detail and gives a good cross-section opinion of many authorities in the field with many additional references (10).

Rheumatoid Arthritis: Salicylates are the usual initial medication in these patients except the patient who presents with an extreme degree of fever and prostration. Combined steroid and salicylate therapy has proven very satisfactory in the rheumatoid subject (11). It is desirable to reduce the salicylate dose to approximately 50 per cent of the maximum tolerable dose for that patient; this prevents problems with salicylate intoxication and in theory may reduce the chances of peptic ulceration. The initial dose of steroid is often lower than the usual dose listed in Table III, but this depends entirely on the severity of symptoms, and it is not less than the minimum dosage. Since the aim of therapy is to prevent loss of joint failure, no laboratory test is used as a guide to dosage after the initial suppression of symptoms. Rather the minimum dose that will provide the patient enough pain-free time each day for adequately performing his usual daily tasks is sought. Complete freedom from pain and reversion of all laboratory findings to normal will usually result in hypercorticism with the usual pernicious side effects. The intra-articular administration of hydrocortisone acetate can be the therapy of choice when only one or two joints are involved. This therapy can be repeated indefinitely with infrequent complications.

Rheumatic Fever: The co-operative studies performed to test the efficacy of steroids in acute rheumatic fever have amply demonstrated what is common knowledge to the practicing physician; neither the practice of medicine nor medical research are possible by committee nor can the best therapy for a disease be administered on protocol. Adequate controlled data are available to dictate the universal use of steroids in all patients who exhibit carditis (12, 13); it likewise behooves the physician to recall the natural history of those patients who do not exhibit carditis (and the difficulty inherent in making this diagnosis) or who have only chorea as a major manifestation before he decides to consider these patients as having a benign disease (14).

The dose of steroid used in most cases is that listed as the usual dose in Table III. Cortisone is used unless cardiac failure is present in which case prednisolone is preferred. When the carditis is severe enough to cause failure, prednisolone will usually bring the patient out of failure and digitalization is unnecessary. The initial dose of steroid is maintained until all clinical as well as laboratory abnormalities are normal and then tapered in the cautious manner described above. A "rebound" of the ESR almost always precedes a clinical rebound of symptoms as the steroid is being tapered. The most beneficial therapy for prevention of rheumatic heart disease is obviously prevention of streptococcal infection in these rheumatic patients and penicillin prophylaxis should be the primary concern in the follow-up management of rheumatic fever.

Systemic Lupus Erythematosus: Prior to adrenal steroids, there was no effective therapeutic agent for this disease. The evidence is rapidly accumulating that adrenal steroids can alter the prognosis of S.L.E., particularly in the acute stage of the disease (15, 16). During crisis, doses that approach the maximum listed in Table III are often necessary. After the fever and toxicity have subsided (usually 7-10 days) the steroid is tapered to the usual range listed in Table III. Since the glomerulonephritis in these patients is the usual limiting factor in their survival, high doses of the adrenal steroids are maintained until proteinuria has disappeared and the creatinine clearance approaches normal. The patient is then tapered to lower dosages and maintained symptom-free much as a rheumatoid patient. Routine urine protein determination as well as E.S.R. are helpful in heralding an exacerbation of the disease. Long periods of remission are not uncommon with no steroid therapy.

Dermatomyositis: Steroids have been extremely valuable in managing these patients as well as patients with the closely related disorder, polymyositis. Maintenance of the patient is generally possible with the usual dose listed in Table III. An attempt is made to relieve all pain as well as signs of muscle tenderness during the acute phases of the myositis and a specific attempt is made to force the patient to use all muscle groups affected to prevent contractures. Low maintenance doses for many months have been necessary in the majority of these patients.

Scleroderma: Very little beneficial effect has been reported (10) after treatment of this state with steroids. No experience with very high doses has been reported.

Periarteritis Nodosa (Polyarteritis): Results of steroid therapy in this disease and the closely related allergic and idiopathic angiitis syndromes (anaphylactoid purpura, etc.) have been inconsistent, but high dose steroid therapy has produced dramatic improvement and appears to have been life saving in some instances. There is no convincing evidence that these diseases are a complication of the steroid therapy in rheumatoid arthritis; it would seem more likely the appearance of angiitis in the rheumatoid patient is a manifestation of the primary disease known prior to the steroid era and that the dose of adrenal steroid should be increased, *not* decreased, if these manifestations ensue.

The Nephrotic Syndrome: This syndrome may not belong in a discussion of rheumatic and collagen diseases, but these patients have gravitated to our clinics, perhaps by default. The management of these patients with steroids has been most rewarding and it would appear that the prognosis has been altered by hormone therapy (17).

The initial dose of steroid is, in general, somewhat higher than the usual dose listed in Table III. This dose is maintained until diuresis is effected and proteinuria has decreased to near zero. The dose is then carefully tapered to the low dose range using proteinuria as the main criterion for duration of therapy at any given lower dose. If proteinuria recurs during tapering, the dose is maintained at that level for several weeks (3-6) prior to further tapering. Low dose therapy is then maintained for 6-12 months after the urine becomes protein-free. Intermittent therapy (giving the total 7 day dose on the first 3 days of the week) has been the most popular method of long term administration in nephrosis and appears to be as satisfactory as a daily dosage schedule.

Summary

The use of adrenal steroids in the rheumatic and collagen diseases has been discussed and some guide-lines for therapy proposed. Familiarity with four preparations would appear to provide all the necessary therapeutic advantages available at present. Strict individualization of the dose and dura-

tion of therapy for the patient and the disease is stressed.

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ELECTROCARDIOGRAM

OF THE MONTH

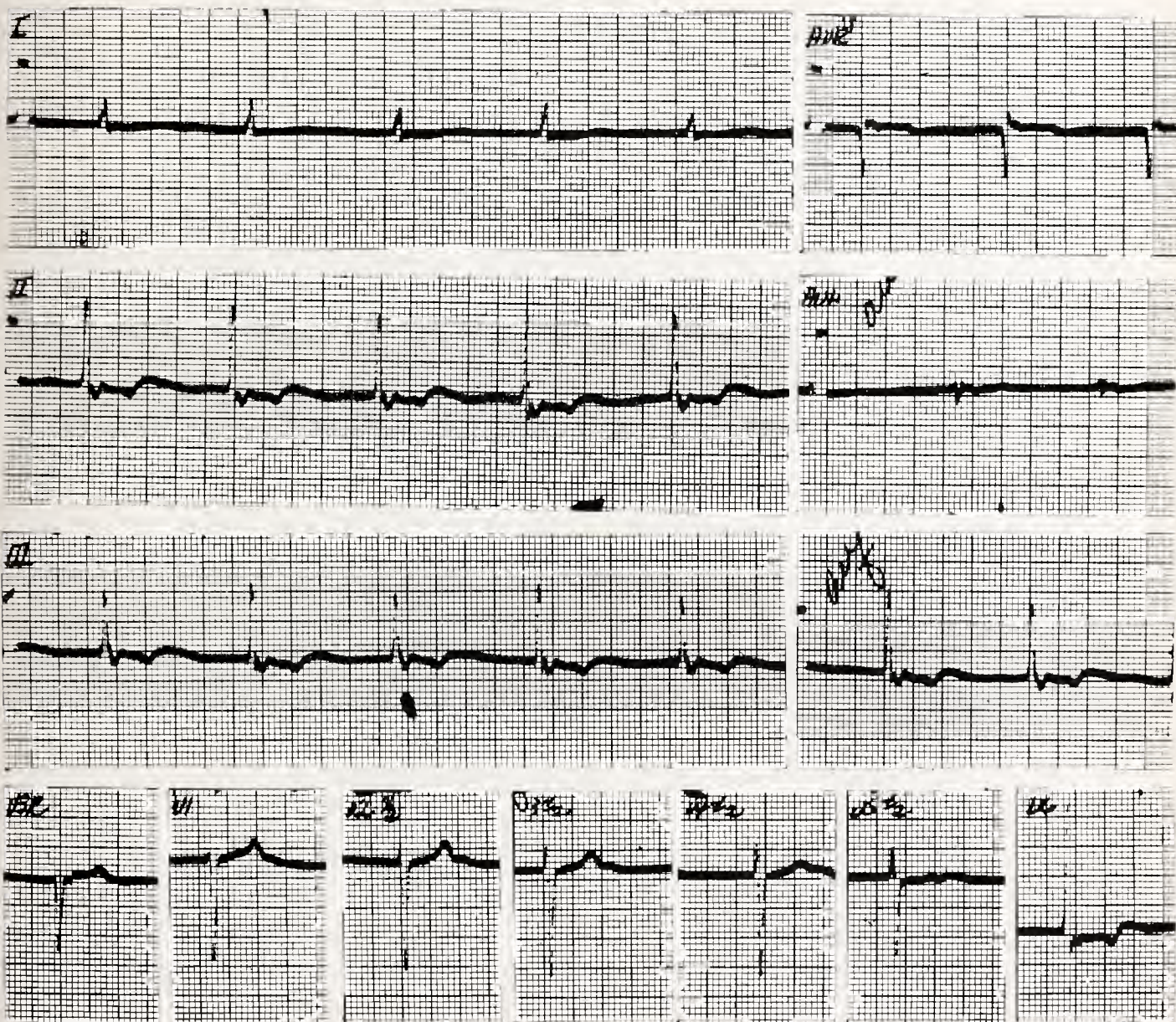
WHAT IS YOUR INTERPRETATION?

AGE: 64 SEX: M BUILD: SLENDER BLOOD PRESSURE: 150/80

MEDICATION: Digoxin .25 mgm b. i. d.

HISTORY: Dyspnea, orthopnea, edema for 2 years; fever past 4 weeks.

Answer on Page 326



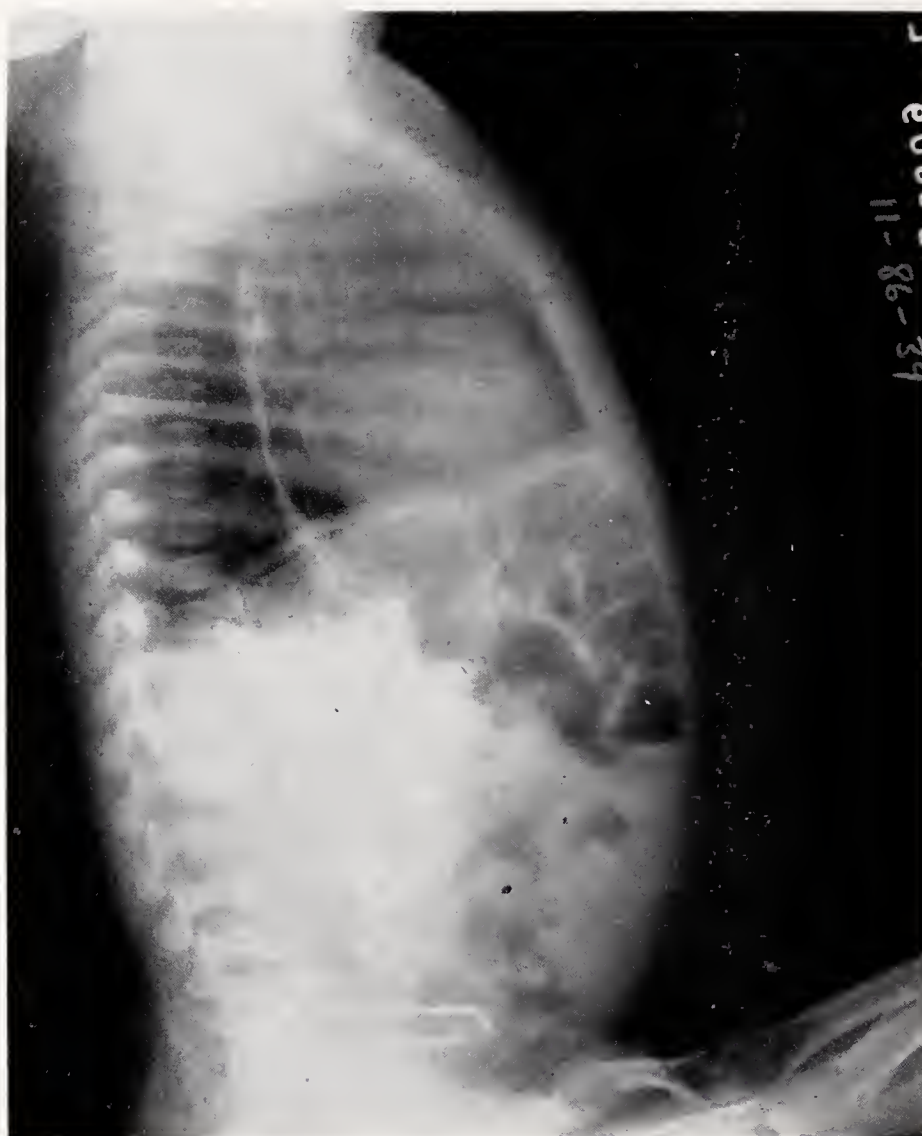
The Department of Medicine, University of Arkansas Medical Center

*James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

Answer on Page 326







PUBLIC HEALTH AT A GLANCE

BRUCELLOSIS IN ARKANSAS

On April 25, 1962, Arkansas became the 27th State in the Nation to be declared "modified certified" as a brucellosis area. The disease has been the cause of considerable illness in the human population as well as a heavy economic drain totaling millions of dollars to the livestock producers which is eventually passed on to the meat consumers. It is doubtful if many individuals fully realize the importance of the "modified certified" brucellosis status which the livestock Disease Control officials have worked so long and hard to obtain for the State of Arkansas.

For example, each time a positive brucellosis animal is removed permanently from the livestock herds by slaughter, the possibility of the spread of the disease to other livestock and human beings is greatly reduced. The economic advantage enjoyed by the livestock producer from the absence of brucellosis in his cattle is tremendous, not to mention the more liberal movement of livestock across state lines.

It is difficult to evaluate the many problems encountered in connection with brucellosis in man and animals because of the nature of the disease. In reality, we are dealing with three diseases which present a somewhat similar course of illness in both man and animals. The three closely related organisms which cause brucellosis in man and animals are: *Brucella melitensis*, *Brucella abortus* and *Brucella suis*. The principal animal source involved with each specific organism is as follows: *B. melitensis*—goats, *B. Abortus*—cattle, *B. suis*—swine.

Brucellosis is more or less accepted as existing in man and animals since the dawn of history. Man does not tolerate the infection as well as certain species of animals. The disease has many variations; it may range from mild to severe, acute illness to a recurrent, chronic disease which persists as long as twenty-five years. In animals,

the disease tends generally to be chronic in all species; but, according to species, individual animal, and brucella type, the illness may range from a mild, transient febrile attack to severe, recurrent fever with localizations, general symptoms and sometimes septicemia terminating in death.

Brucella organisms are reported to be resistant to certain natural influences such as:

1. The bacillus will live 4½ hours when exposed to direct sunlight.
2. Remain infectious 5 days when dried in burlap sacking and kept at ordinary room conditions.
3. Materials will be infective 37 days when dried in burlap sacking and kept in an unheated cellar.
4. Remain infective 37 days when dried slowly in soil.
5. Bovine urine may remain infective for 4 days.
6. The brucella organism will remain infectious 120 days in bovine feces which has been allowed to dry very slowly in a dark stable.
7. Remain in an aborted fetus during cool weather 75 days.

Brucellosis in man is commonly known as undulant fever and is caused by brucella organism of animal origin. Scientific evidence does not indicate that the infection spreads from man to man. It appears that the prevention and control of brucellosis in man is directly dependent upon its control and eradication in domestic animals.

In considering brucellosis in man, a few additional remarks relative to the nature of the disease may be appropriate and informative. The course of the disease may vary in that certain individuals may develop serious acute and chronic symptoms, others may support a subclinical infection, or a brief or low-grade illness that may escape diagnosis. This overt disease may range

from a brief illness of a few days to a severe, febrile illness lasting for weeks or months with one or more relapses. The onset may be abrupt or insidious. In acute cases, one may expect a septicemia or an intermittent bacteremia. The chronic form of the disease may be manifested in the following listed conditions: localized lesions which persist for years, brucella spondylitis, osteomyelitis, suppurative arthritis, orchitis, subacute endocarditis, a form of hepatitis, organic brain damage, and many other damaging results which are regarded as manifestations of brucella infections.

A satisfactory treatment of brucellosis in man was a long time in the process of development. The treatment of choice, as described in the literature, is a combination of dihydrostreptomycin and chlortetracycline. Any of the broad spectrum antibiotics may replace chlortetracycline in the combination. In the case of domestic animals,

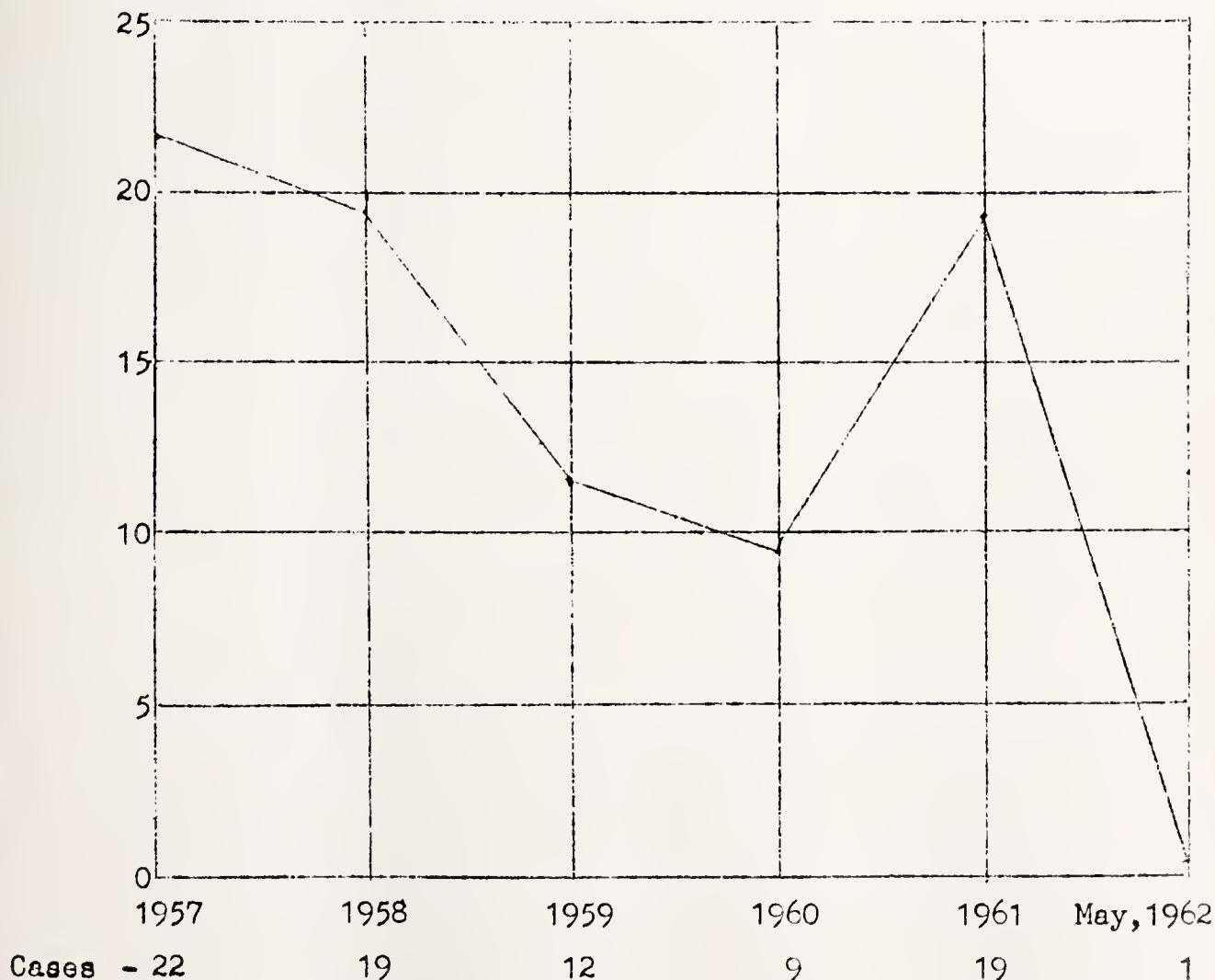
there is no known cure for brucellosis. Many animals discontinue showing symptoms but usually are still diseased and remain dangerous sources of the infection to other livestock and man.

Let us examine a few human cases of brucellosis which occurred in Arkansas during the calendar year of 1961.

There is the case of a 30-year-old, white male of El Dorado, Union County, Arkansas, who became ill on April 25, 1961. This individual presented an irregular temperature and a rash approximately one week before entering the hospital. The irregular temperature ranged from 101°F. to 102°F. for one month while under a physician's care. This patient finally developed hepatitis with impaired liver function.

This particular individual was a filling station operator and did not own any livestock. However, he liked to fish and spent considerable time pursuing this activity in pastures, cowlots, and

Human Brucellosis Cases Reported in Arkansas 1957 - May, 1962



other places where livestock were maintained looking for fishing worms. It was the habit of this man to go barefooted on these fish bait excursions. Upon one occasion, when he left the Grant Lake Fishing Camp near Eudora, Chicot County, Arkansas, to procure fish bait, he cut his big toe while walking in the pastures and livestock pens. A few weeks after this exposure, the individual became ill and has been under a physician's care almost continuously.

His laboratory diagnostic agglutination tests presented the following titers: May 17, 1961, positive for U.F. 1:640; May 18, 1961, positive for U.F. 1:640; May 24, 1961, positive for U.F. 1:10,240; May 26, 1961, positive for U.F. 1:40,960. *Brucella melitensis* was isolated from his blood culture.

It was further established that the above individual frequented pastures and other areas where both cattle and goats were maintained. Efforts were made to locate the possible source of his infection without success.

Another case of brucellosis was of a 67-year-old white, female housewife, who resided in Higginson, White County, Arkansas. This farmwife's case was reported to the Arkansas State Health Department June 24, 1961, by the private physician as brucellosis.

Investigation established that this individual has been ill with brucellosis since 1955 and was now apparently experiencing a recurrent attack from her original infection. The date of illness of this attack was June 1, 1961. This patient had contact with both cattle and swine over a period of years. On June 13, 1961, a blood sample was positive for undulant fever in dilution 1:160.

In a different area of Arkansas a 26-year-old, white female, also a farm housewife, was reported as having brucellosis on September 11, 1961. The date of onset was July 25, 1961, with a recurrence

August 3, 1961. This patient was admitted to the Calhoun County Hospital, Hampton, Arkansas, September 6, 1961, acutely ill. The symptoms presented by this patient were weakness, headache, fever, sweating, and chills. A blood sample dated September 6, 1961, was positive for undulant fever in dilution of 1:5,120 tube and 1:10,240 slide.

This farm family rented their farm. They owned five or six hogs with two of the sows having had a history of aborting on two or more occasions. The hogs roam about the premises at will. The family uses raw milk from several milk cows. A check of the livestock by the Animal Disease Eradication authorities found the cattle negative for brucellosis. The hogs presented a different picture; the three older sows were positive for brucellosis. There is a strong possibility that the hogs were the source of the housewife's infection. It was recommended that all the hogs be disposed of by slaughter.

The decline in human brucellosis is directly related to the decline of the disease in livestock. The successful program engaged in by the States and the Federal Government to eliminate bovine brucellosis has been very effective. The main source of human infection now appears to be in swine and may remain so in the future. Unquestionably, control and eventual elimination of human brucellosis depends on the eradication of the disease in swine as well as in cattle; otherwise, human brucellosis may remain on the books in the future or even record an increase.

The attached chart shows the incidence of human brucellosis in Arkansas over the period 1957-May, 1962. The ultimate goal of the medical and veterinary professions is to eliminate completely the disease from the human and animal populations of this Country.



EDITORIAL

GROB ON MYASTHENIA GRAVIS

Alfred Kahn, Jr., M.D.

ONE OF THE OUTSTANDING RECENT reviews is that of Grob (Myasthenia Gravis, Archives of Internal Medicine, Volume 108, p. 615, October, 1961) on Myasthenia gravis. The following summarizes some of the material presented by Grob.

Grob describes normal muscle fibers as being in a state of polarization when at rest. "When a nerve impulse reaches the motor nerve ending acetylcholine, the mediator of neuro-muscular transmission, is released." This substance then is absorbed by a specialized part of the muscle cell known as the end plate. This results in a flow of ions through the muscle wall; sodium in and potassium out. In this way, the muscle becomes depolarized and a wave of negative potential moves along the muscle fiber causing contraction of the muscle. The acetylcholine is split into acetate and choline by choline esterase. Later the muscle repolarizes.

Neuromuscular block according to Grob may be the result of deficient action of an acetyl choline as in deficient action of acetyl choline or due to inhibition of the depolarizing action of acetyl choline on the motor end plate as:

- A. Block occurring without change in the resting potential of the muscle membrane and reversible by excess acetyl choline.
- B. Block as in A., but not reversible by excess acetyl choline.
- C. Block association with hyperpolarization of muscle membrane.

The second main cause of neuromuscular block

is abnormally prolonged depolarization of the end plate. Lastly, there are mixed types.

The cause of the neuromuscular block in myasthenia gravis has been a puzzle; there is no known defect in the nerve. Grob feels that present evidence suggests some alteration in the acetyl choline mechanism, possibly due to elevation of the excitatory threshold of the motor end plate to the acetyl choline released by the nerve. Myasthenia may be the result of competitive inhibition by an abnormal product at the myoneural junction.

The myoneural junction in normal patients and myasthenic patients differ. Grob points out that acetyl choline administered to a normal patient "causes a 'prompt' depression of muscle action potentials evoked by nerve stimulation lasting several seconds, followed by a temporary recovery and then by a more prolonged 'late' depression lasting one half to one hour." Neither acetyl choline nor anticholinesterase administered to normal patients will reverse the "late" depression on the other hand, most patients with myasthenia gravis have the opposite effect.

Myasthenia patients actually may demonstrate different types of block. In most patients, acetyl choline injection "inhibits the depolarizing effect of acetyl choline and is reversed by acetyl choline by anticholinesterase compounds." Grob states that there are a group of patients in whom acetyl choline will not reverse the inhibition of acetyl choline's depolarizing effect. These patients are called acetyl choline insensitive and are resistant

to acetyl choline therapy. This state may occur temporarily in other patients. Grob warns that the acetyl choline insensitive state is hard to treat because it is hard to decide if this patient has had enough or too much anticholinesterase drug. Actually three possible types of blocked response to acetyl choline may be present in myasthenia:—depolarizing, competitive, and acetyl choline insensitive. Among the other causes of myasthenia suggested are:—auto-immune reactions, chemical inhibitions, etc.

The clinical manifestations of myasthenia may be localized in 20%, but are generalized in 80%, and the initial symptoms usually start in the muscles of the eyes, face, and mouth and spread later to the trunk and extremities. The average age of onset in women is about 28 years and in men about 42 years. The main complaint in the affected area is weakness. The maximal weakness tends to occur in the first three years. Of 350 patients reported 85% died in three years. The disease is characterized by remissions lasting as long as 6 months or more. The disease is associated in a small percent with hyperthyroidism but in 15% there are thymic tumors. These tumors may be malignant; thymic tumors when found should be removed.

The diagnosis of myasthenia gravis is made by an improvement in muscle strength after administering anticholinesterase substances as Prostigmin or Tensilon. Neostigmine 1 mg. per 100 pounds of body weight plus Atropine 0.5 mg. per 100 pounds of body weight is the usual test; it is given intra-muscularly. Myasthenic patients will show an increase in grip, the palpebral fissure widens, arms and legs can be elevated longer, etc. Tensilon given in a 2 mg. dose intravenously and followed if necessary by 8 mg. is also a good test for myasthenia. Quinine and curare should be used with extreme caution in these patients.

Grob recommends Neostigmine, Mestinon, and Mytelase as the most useful drugs in treatment of myasthenia gravis. These are a group of long active drugs of organo phosphorous type as DFP, TEPP, OMPA., which when used may produce a cumulative effect. The author recommends that the best way to estimate dosage for any given patient is to find the maximum strength obtainable after intra-muscular injection of 1.5 mg. Neostigmine with 0.5 mg. Atropine per 100

pounds of body weight. Then give the drug of choice until this equivalent strength is reached. Overdosage will produce weakness and is termed a "cholinergic crisis." Some of the drugs with their average dosages are: Neostigmine 15 mg. to 45 mg. given orally q. 2-4 hours; Mestinon, which has a more prolonged range 120-300 mg. orally q. 4 hours; or in the similar drug, Mytelase, 10-30 mg. In an emergency where breathing or swallowing is difficult, give 1 mg. of Neostigmine with 0.4 mg. Atropine intravenously. Dosages of longer lasting drugs must be changed at two-day intervals to avoid cumulative effects. The intravenous injection of the short lasting Tensilon in 2 mg. dosages may be tried to see if patient has reached a maximum strength, or needs larger dosage of anticholinesterase treatment. Atropine is often used as a regular drug in these cases to prevent certain side effects of the anticholinesterase, but it should be used sparingly during the initial dosage adjustment to prevent non-detection with overdosage of anticholinesterase.

Periods of exacerbation occur in myasthenic patients characterized by muscle weakness and difficulty with breathing and swallowing. The patient requires larger dosages of anticholinesterase drugs and is less responsive. This may be severe enough to term a myasthenic crisis. This may require an artificial airway or a respirator.

Overdosage of anticholinesterase drugs occurs occasionally and is called when severe, a "cholinergic crisis." It is also characterized by weakness. If overdosage is suspected, Grob suggests withholding the anticholinesterase drug being used for several hours and observing muscle strength. Another technique is to give 1 mg. of Tensilon intravenously and if no increase in muscle strength occurs overdosage should be suspected; a respirator should be available if this test is employed in a very weak patient. Oximes as P-2-AM or DA Min 500 mg. intravenously will counteract the effect of anticholinesterase overdosage; great care must be used to avoid overshooting and producing a myasthenic crisis.

Grob states that thymectomy in myasthenia gravis produces statistically better results but not enough to warrant its general application. This procedure is probably justified in young women who are responding poorly to treatment. Thymomas probably should be removed.

MEDICINE IN THE



Mountain Home Doctor Selected to Participate in Special Staff Visit to Europe

Lt. Colonel Benjamin N. Saltzman of 126 West 6th St., Mountain Home, Arkansas, was selected by the Department of the Air Force to participate in a special staff visit to observe Air Force operations in Europe.

Colonel Saltzman left Washington, D.C., along with eight other officers of the Air Reserve Forces, the first week in December to visit major headquarters and representative Air Force bases in France, Germany and Great Britain. They returned on December 22, 1962.

Colonel Saltzman is a Medical Staff Officer with the 825th Combat Support Group, Little Rock Air Force Base, Arkansas. In civilian life he is a general practitioner and surgeon, Saltzman-Guinee Clinic, Mountain Home, Arkansas. He is President of the Arkansas Tuberculosis Association and a Director of Rotary International.

AAGP Hears Prominent Surgeon

Dr. Jack L. Strominger, professor of Pharmacology and microbiology at Washington University in St. Louis, spoke at the Arkansas Academy of General Practice 15th annual meeting in Little Rock. He predicted that one or two penicillin antibiotics may someday kill germs of all infectious diseases. Penicillin already has been modified to develop new drugs and new applications. He expects development of an anti-allergic type so persons who cannot now take penicillin may do so safely.

Festival of Faith is Held at Tyronza

Dr. Norman Vincent Peale, author, lecturer and spiritual leader, was featured speaker at the Festival of Faith at Tyronza recently. Other speakers included Dr. Edward Annis of Miami, Florida, president-elect of the American Medical Association, Dr. Louis A. Kraus, University of Maryland internal medicine specialist and Dr. Alton Oschner of the famed Oschner Clinic in

New Orleans. The affair was sponsored by the First Councilor District headed by the originator of these gatherings, Dr. L. H. McDaniel of Tyronza.

Dr. Saltzman Addresses Unitarians

Dr. Ben N. Saltzman, Mountain Home, lectured at the Unitarian Universalist Church recently, on the subject of the Rotary Student Exchange program.

Dr. Saltzman is a native of Ansonia, Ct., is president of the Arkansas Tuberculosis Association and a director of the state division of the American Cancer Society, is a former president of the Arkansas Academy of General Practice and a former vice president of the Arkansas Medical Society of which he now is treasurer. He is Baxter County health officer and secretary of the Baxter County Medical Society.

Sabin Plans for Pulaski County Rescheduled

The Pulaski County Medical Society has rescheduled its mass polio immunization program for six Sundays beginning early in January, 1963. The series of six clinics has been scheduled to begin September 30, 1962, but several cases of polio were reported in Canada in people who had taken the Type III vaccine. The new dates are January 6 to 13 for Type I, February 24 to March 3 for Type II and later in the spring for Type III if it is proved safe.

Dr. Dodge Addressed B&PW Club

Dr. Eva Dodge, professor of obstetrics and gynecology at the University of Arkansas Medical Center, was guest speaker at the meeting of Little Rock Business and Professional Women's Club recently.

Dr. Dodge is president of Pan-American Medical Women's Alliance, member of Medico Medical Advisory Board and a member of Altrusa Club. She spent two months last year visiting hospitals and medical schools in Guatemala, Costa

Rica, Panama, Columbia, Peru, Bolivia, Paraguay and Brazil.

Radiological Society Meets in Little Rock

The fall meeting of the Arkansas Radiological Society was held on October 27, at the Holiday Inn in Little Rock. The program consisted of a panel discussion moderated by Dr. Howard Barnhard of the University. Panel members were Dr. John Pierce of the Department of Medicine at the University, Dr. Robert McDonald of Pine Bluff, and Dr. Bill Gray of Hot Springs.

Society for Experimental Biology and Medicine Meets in Little Rock

Members of the Southwestern Section of the Society for Experimental Biology and Medicine from Arkansas, Louisiana, Texas and Oklahoma met recently at the University Medical Center in Little Rock.

The Doctors heard and discussed 20 papers on results of current research projects in such areas as vitamin deficiencies, radiation effects, bone and heart diseases, thyroid function and pneumonia.

Dr. Winston K. Shorey, dean of the University of Arkansas School of Medicine, welcomed Society members at the opening meeting.

Doctors Invited to Submit Papers for A.M.A. Atlantic City Meeting

CHICAGO—The Council on Scientific Assembly invites physicians to submit titles and brief abstracts of scientific papers they wish to deliver at the 1963 annual meeting of the American Medical Association, which will be held in Atlantic City, June 16-20. The deadline is December 15.

"We would like to receive as many titles and abstracts as possible," said Council Secretary George R. Meneely, "because in that way we have better selection and this, in turn, assures a more timely and better scientific program."

The Third Multiple Discipline Research Forum will be an important part of the A.M.A. Scientific Assembly in Atlantic City. It will be held for three days and the Forum will be limited to reports, eight minutes in length, of original investigation of fundamental problems in medicine and medical practice. The deadline for Research Forum abstracts is February 1, 1963.

Dr. Meneely also announced that the deadline

for space in the Scientific Exhibit at the Atlantic City meeting is January 9, 1963.

The deadline for receipt of application forms for the presentation of films on the Motion Picture Program for that meeting is January 9, 1963.

Physicians who wish to participate in the Atlantic City scientific program and desire information are invited to write to: Dr. George R. Meneely, Secretary, Council on Scientific Assembly, American Medical Association, 535 North Dearborn St., Chicago 10, Ill.

The Month in Washington

Washington, D. C.—A Public Health Service study of possible links between cigarette smoking and lung cancer got under way with appointment of a 10-member advisory committee including eight physicians from the academic field.

Dr. Luther L. Terry, Surgeon General of the PHS and chairman of the committee, said he selected the 10 members on the basis of geographic distribution and balance among professional discipline, scientific objectivity, competence in special fields of interest, ability to think broadly outside of one particular field of interest, and ability to critically analyze a point of view.

In addition to being a committee member, Dr. Stanhope Bayne-Jones also is serving as a special consultant to the committee staff. He is a former dean of the Yale School of Medicine and a former president of the American Society of Pathology and Bacteriology.

"This committee is not merely an aggregate of ten men," the Surgeon General said. "It is a composition of specialists covering the broad range of medical sciences involved in evaluating the complex relationship between tobacco smoking and health. I expect the committee to be a dynamic, productive and creative group that will shed light on these complex questions."

The committee members were selected from a list of approximately 150 names submitted by Federal agencies, voluntary health organizations and the tobacco industry.

In the first phase of its activity, the committee is making a comprehensive review of all available data on smoking and other factors in the environment that may affect health. It is expected that this review will be completed by next summer.

The second phase of the study will concern recommendations for action. No decision on how the second phase is to be conducted will be made until the first phase has been completed.

Soon after appointment of the committee, the National Cancer Institute under PHS issued a new booklet "Cancer Cause and Prevention" which referred to the conclusion reached by the PHS in 1959 that smoking is the principal reason for the steep rise in lung cancer cases.

The booklet discusses cancer as a preventable disease. It describes environmental and personal factors involved in the causation of cancer, and occupational cancer hazards that to some extent may be avoided. It goes into the problems of air pollution, radiation exposure, and food additives.

The booklet points out that as the older age group in the population increases, more people are living long enough to develop cancer induced by exposure to a causative agent earlier in life. Such cancers may take as long as 40 years to appear, it says.

"Thus," the publication concludes, "mortality from malignant disease in the future can be reduced by continuous identification and eradication of cancer hazards."

* * *

The Food and Drug Administration was criticized as to both policies and operation by a Citizens Advisory Committee and some members of Congress.

A special advisory committee—appointed by the Secretary of Health, Education and Welfare and headed by Dr. George Y. Harvey, a political science lecturer at the University of Missouri—said the FDA had fallen short in carrying out its responsibility of protecting the American public against unsafe drugs, therapeutic devices and foods.

The FDA came in for even sharper criticism from Sen. Hubert H. Humphrey (D., Minn.) who indicated his Senate Government Operations Subcommittee would hold hearings in December on the agency. He charged the FDA lacks the ability and competence to carry out the new drug law effectively.

He accused the agency of failure to keep in touch with other government health projects and outside experts.

"Drugs have been approved which FDA now admits should never have been approved," Humphrey said. "Drugs have been kept on the market long after FDA admits they should have been eliminated from the market."

The 16 doctors, educators, businessmen and consumers on the advisory committee reported to HEW Secretary Anthony J. Celebrezze after a year-long study of FDA programs and procedures.

Making 10 major recommendations for overhauling FDA's approach to consumer protection, the panel said the federal agency had been relying on "after-the-fact enforcement" of regulations rather than taking more preventive action.

Celebrezze promised that the report would get a "most careful analysis." He said steps already were being taken to assure the public adequate protection through administrative action and under the new drug safety law recently passed by Congress.

"Although inspection and punitive action are vitally necessary," the committee said, the time has arrived for a more constructive approach. "After-the-fact enforcement is not always good consumer protection. Other approaches along preventive lines should be developed."

International Personnel Resource Survey

The International Personnel Resource Survey conducted by the Association of American Medical Colleges as part of the Faculty Register has elicited important new information on the potential availability of medical faculty members for short and long term service abroad, as well as information on language competence and geographic interest of the respondents. The survey has revealed a greater interest in international service than had been anticipated. This can be expected to influence the planning of international programs in the health field.

Of the 30,918 U.S. medical faculty member respondents to the International Questionnaire, 11,137 indicated their availability for service abroad predicated upon the assumption that "satisfactory leave arrangements can be made." Availability is expressed in terms of voluntary service (expenses only) or employed service (under "acceptable financial conditions"). Detailed findings pertinent to faculty member availability are presented in Table 1, Figure 1 and Figure 2.

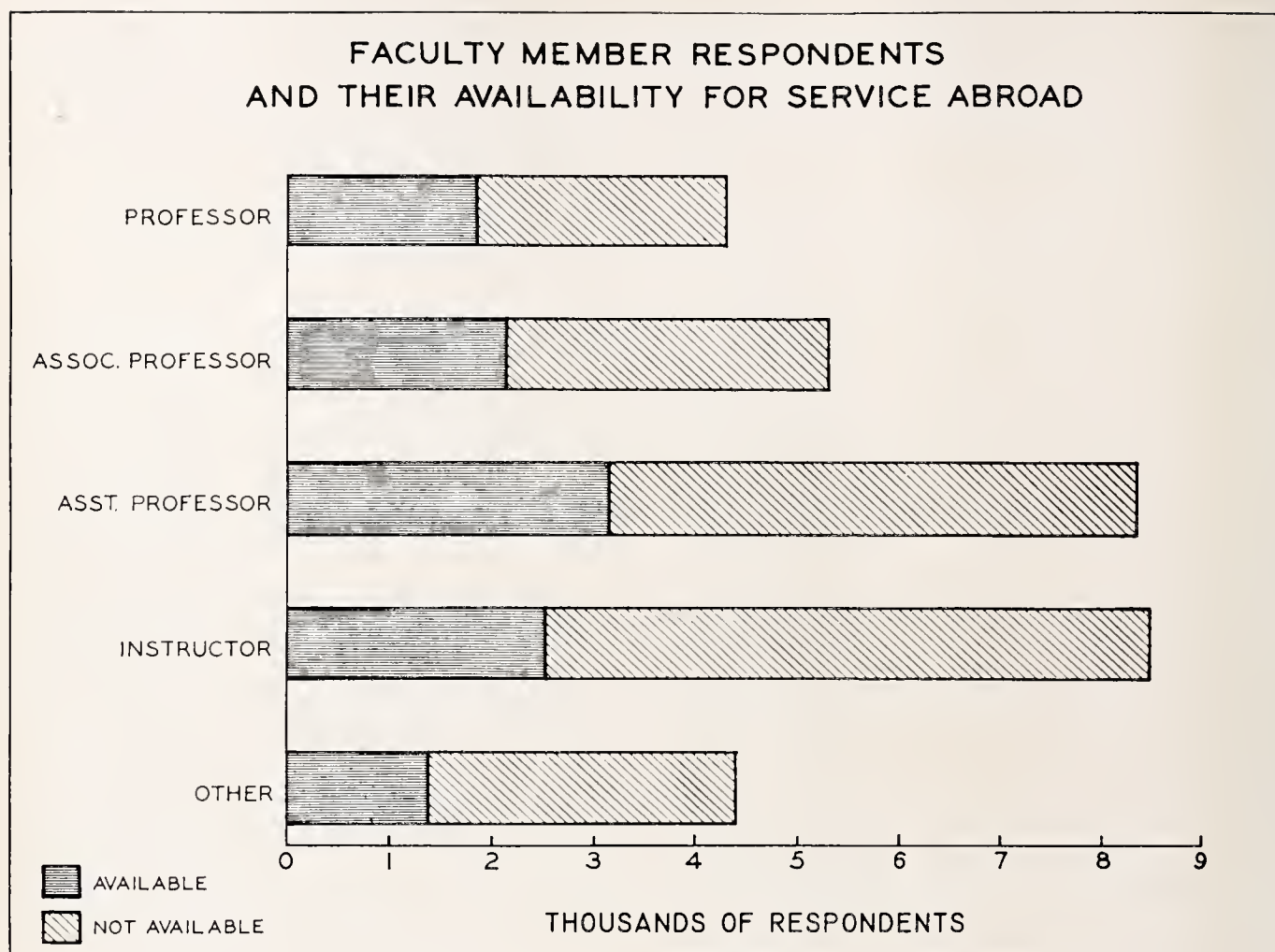


FIGURE 1

*Submitted by the Division of International Medical Education of AAMC. On request complete data and sources will be furnished.

TABLE 1
LENGTH OF TIME AND CONDITION OF EMPLOYMENT
UNDER WHICH MEDICAL FACULTY MEMBERS
ARE AVAILABLE FOR SERVICE ABROAD

CONDITION OF EMPLOYMENT	PERIOD OF TIME AVAILABLE			
	Not Specified	4 Mos. or Less	4 Mos. to 1 Year	2 Years or More
Not Specified	141			
Employment		2,326	3,607	2,400
Voluntary Service		807	206	39
Either Employment or Voluntary Service		1,023	411	179
Total	141	4,154	4,224	2,618
				11,137

No measure of the current or potential demand for U.S. medical faculty members abroad exists, but it appears that the demand for which finance is available does not approach the order of magnitude of potential availability shown by these data.

This imbalance between apparent availability of U.S. medical faculty members and the financial support necessary for service abroad should be kept in mind in assessing the significance of the findings presented.

ERRATUM

CORRECTION FOR DATAGRAM "FULL-TIME PHYSICIAN FACULTY BY SCHOOL OF GRADUATION," JOURNAL OF MEDICAL EDUCATION, Vol. 36, No. 2, pp. 178-179, February, 1961 and "DATAGRAMS," The Fact-Sheet Series, Vol. 2, No. 8A, February, 1961

More than a year ago a Datagram was published which dealt with the supply and schools of origin of teaching personnel in U. S. medical schools. Entitled, "Full-Time Physicians by School of Graduation," the information was published in The Journal of Medical Education, Vol. 36, No. 2, pp. 178-179, February, 1961 and issued

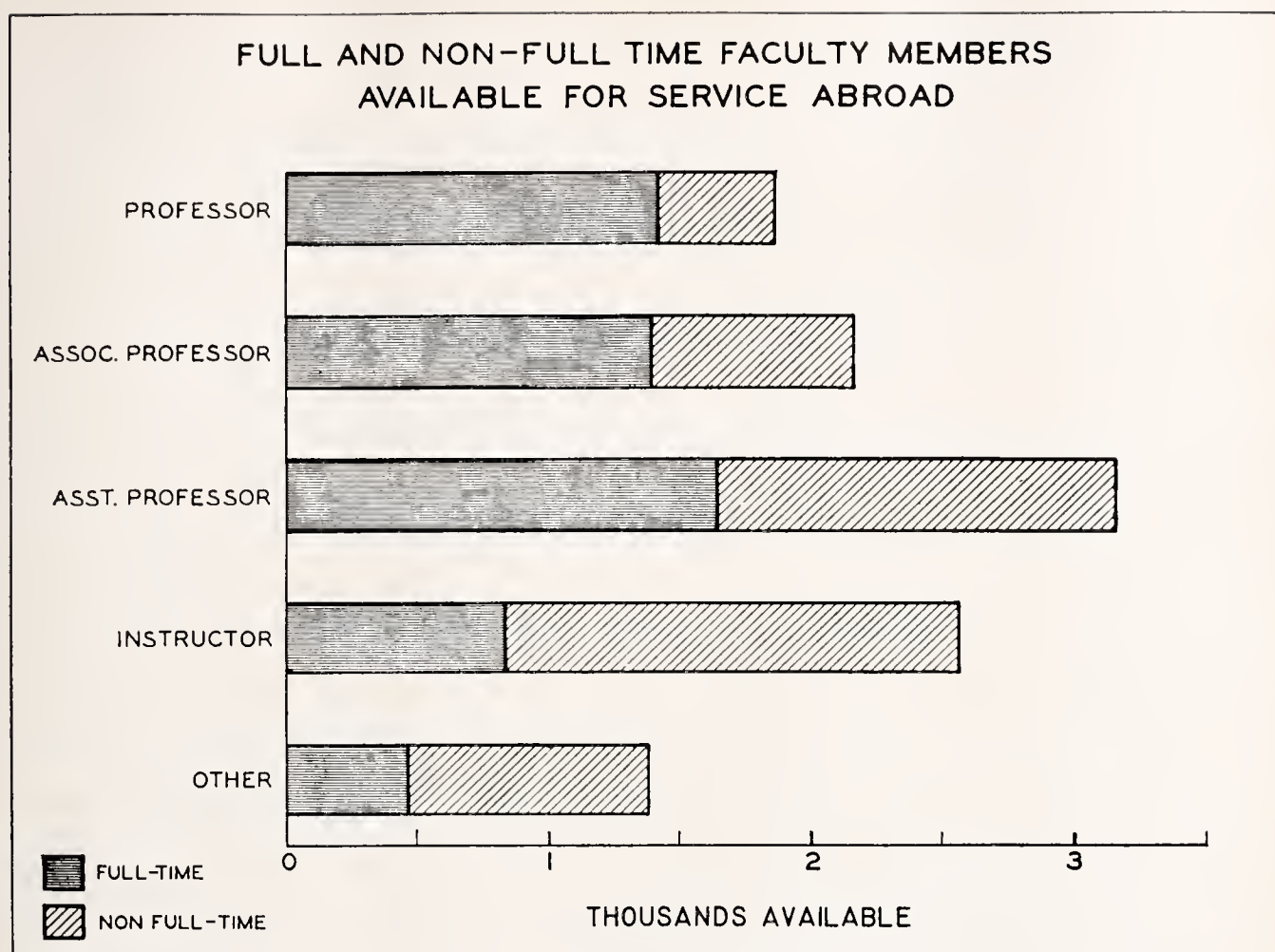


FIGURE 2

in "DATAGRAMS," the fact-sheet series as Vol. 2, No. 8A, February, 1961.

Several inquiries and comments concerning this Datagram have been received from our readers. One subscriber expressed the belief that "erroneous conclusions" might be drawn from the comparison of Figures 1 and 2 due to lack of explanation of the methods used in developing the two sets of data. He further suggested that the content of the Datagram might have been expressed in more meaningful terms had it been arranged in time period sequences to show trends.

Upon re-study, an error was discovered in the original presentation of Figure 2. It is essential that we rectify this. In order to do so and also to eliminate any further chance of confusion over interpretation, Tables 1 and 2 which appear below are to be substituted for Figures 1 and 2 that appeared in the original Datagram.

In Table 1 the actual number of graduates serving as full-time faculty from each school is shown as a percentage of all faculty members

holding full-time teaching positions in U. S. medical schools as of July, 1960. That is, among the 6,059 M.D. faculty members who reported holding full-time teaching positions as of July 1, 1960, 568 of them, or 9 percent claimed Harvard as their alma mater.

In Table 2, for the years 1934 through 1958, the number of graduates serving as full-time faculty from each of the separate schools is shown as a percentage of each schools total graduates. For example, during the period 1934-1958 a total of 3,603 students were graduated from Harvard Medical School. Among these specific graduates, 477 physicians, or 13 percent, reported holding full-time faculty positions as of July 1, 1960.

The fullest possible exposition of terms used in presentations such as the Datagrams is not always possible due to the extreme limitation of text space relative to the amount of space needed for graphic presentations. We agree, however, that a fuller explanation of the procedures used in the particular Datagram in question would have been helpful to the cursory reader.

TABLE 1
Full-Time Faculty Members* by School of Graduation
(Top 15 Schools)

School	No. of Graduates who Reported Holding Full-Time Faculty Positions in All U. S. Medical Schools as of July 1960	Full-Time Faculty by School of Graduation as a Per Cent of Total Full-Time Faculty in All U. S. Medical Schools in July 1960
Harvard Medical School	568	9.37%
Johns Hopkins University	331	5.46
University of Pennsylvania	252	4.16
Columbia University	240	3.96
University of Chicago	188	3.10
University of Michigan	185	3.05
University of Rochester	165	2.72
University of Minnesota	158	2.61
New York University	156	2.58
Cornell University	154	2.54
Yale University	152	2.51
Washington University, St. Louis	137	2.26
Northwestern University	117	1.93
Vanderbilt University	111	1.88
Duke University	111	1.83
<hr/>		
Total from top 15 schools	3,028	49.96%
Total from all other schools	3,031	50.03%

*100% = 6,059 (1,269 full-time faculty members did not specify school of graduation or were graduated from foreign medical schools).

NOTE: Per cents do not add to 100 due to rounding.

It was not possible to arrange our data in time sequences to show trends. But if Table 2 is compared with Chart 3 of the study "Staffing Patterns At Four-Year Medical Schools" by H. S. Diehl, M.D. West and R. W. Barclay which appeared in The Journal of Medical Education, Vol. 27, No. 5, Part 1, 1952 (page 314), it will be noted that between the 25-year periods 1925-49 and 1934-58 there was considerable shifting in the relative positions of many of the schools. The Diehl Study reported that as of February, 1951 the top eight schools in the proportion of 1925-49 physician graduates holding full-time faculty appointments at U. S. medical schools differed from those appearing in Table 2 and in rank order were as follows: Johns Hopkins, Harvard, Yale, Rochester, Pennsylvania, Wisconsin, Cornell and Chicago University.

In the data used in the accompanying Tables 1 and 2 and also in the study by Diehl, et al, the term "Full-time" included both geographic and strict full-time as reported by the individual

faculty members in a questionnaire. The 1960 data were based on replies to the Faculty Register Questionnaire from 36,054 faculty members. This number fell short by about 10% of providing a complete inventory of medical teaching personnel. Among all respondents, 7,328 physician faculty members reported themselves as holding full-time positions as of July 1; 1,269 of these did not specify their school of graduation or were graduated from foreign medical schools. It is assumed that the data used in the study by Diehl, et al., were subject to comparable limitations. While these limitations may mean that the data do not permit interpretations based on absolute numbers, they do permit conclusions as to approximate relationships,—particularly in those instances where the numerical difference in rank order between schools is considerable.

TABLE 2
Per cent of Graduates of Each Medical College Who Reported Themselves as Full-Time Faculty Members in Continental United States Medical Schools as of July 1960: Classes of 1934 Through 1958
(Top 25 Schools)

School	Total Number of 1934-58 Graduates	No. of Full-Time M.D. Faculty Teaching in 1960 Who Graduated From Their Medical School Between 1934 and 1958	Percentage of 1934-58 Graduates Teaching Full-Time in 1960
Harvard Med. School	3,603	477	13.24%
Johns Hopkins Univ.	1,901	240	12.62
Univ. of Rochester	1,490	161	10.81
Yale Univ.	1,429	136	9.52
Columbia Univ.	2,733	212	7.76
Univ. of Calif., L.A.	145	11	7.59
Vanderbilt Univ.	1,315	99	7.53
Cornell Univ.	1,954	139	7.11
Duke Univ.	1,708	110	6.44
Univ. of Pennsylvania	3,361	212	6.31
Univ. of Chicago	2,784	172	6.18
Univ. of Washington	557	27	4.85
Western Reserve Univ.	1,886	90	4.77
Univ. of Michigan	3,148	118	4.70
Univ. of Calif., S.F.	1,823	84	4.61
Univ. of Wisconsin	1,621	73	4.50
Wash. Univ., St. Louis	2,479	110	4.44
Univ. of Minnesota	3,152	139	4.41
Univ. of Utah	642	28	4.36
Stanford Univ.	1,540	67	4.35
Univ. of Virginia	1,629	70	4.30
New York Univ.	3,243	135	4.16
Univ. of Cincinnati	2,092	76	3.63
Bowman Gray School of Medicine	743	26	3.50
State Univ. of Iowa	2,083	71	3.41

THINGS TO COME

Symposium on Fundamental Cancer Research to be Held in Houston, Texas

The seventeenth Annual Symposium on Fundamental Cancer Research will be held February 20, 21, and 22, 1963. It is sponsored by The University of Texas, M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston Texas, and co-sponsored by the National Cancer Institute, American Cancer Society, Texas Division.

Postgraduate Seminar on Psychiatric Problems for the Family Physician

"Homicide and Suicide, and the Medic-Legal Aspects of Psychiatry" will be the subject of the ninth quarterly post-graduate seminar on psychiatric problems for the family physician to be held Sunday, January 27, at the Neurological Hospital in Kansas City, Missouri.

These seminars are presented by the Kansas City Academy of General Practice in cooperation with the Western Missouri District Branch of the American Psychiatric Association, and have been granted Category I credit by the American Academy of General Practice.

Guest Discussant at the January meeting will be Hamilton Ford, M.D., of the Titus Harris Clinic, Galveston, Texas, and professor in the Department of Neurology and Psychiatry at the University of Texas.

All interested physicians are invited to attend, and those interested should send their names and addresses to: GP Program, Neurological Hospital, 2625 West Pasoe, Kansas City 8, Missouri.

Post-Graduate Course Offered at University of Texas

The University of Texas Postgraduate School of Medicine is pleased to announce a course on "Infectious Disease-1963-Recent Contributions of Lasting Value," scheduled for Thursday and Friday, February 28 and March 1, 1963. The Course will be held in the Texas Medical Center, Houston, Texas.

The program will include a number of outstanding guest speakers, who will discuss New Concepts in Immunology, Bacterial Hypersensitivity, Applied Pharmacology of Antimicrobial Agents, Undue Susceptibility to Infection, Present Status of Antifungal Antibiotics, Some Basis for Judgment in the Use of the Antimicrobial Agents, Hypersensitivity and Penicillin, Fluorescent Antibody Techniques in the Diagnosis of Infectious Diseases, Progress in Use of Live and Killed Measles Vaccine, Prevention of Viral Diseases and Perspectives of Infectious Disease.

For further information write: Office of the Dean, The University of Texas Postgraduate School of Medicine, 102 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

Sixth Annual Cardiac Symposium to be Held in Phoenix

The Sixth Annual Cardiac Symposium will take place on Friday, January 18 and Saturday, January 19, at the Arizona Biltmore Hotel. Distinguished speakers for the forthcoming sessions are as follows: Howard B. Burchell, M.D., Mayo Clinic, Jesse E. Edwards, M.D. University of Minnesota, Alfred P. Fishman, M.D., Columbia-Presbyterian Medical Center and Robert H. Goetz, M.D., Albert Einstein College of Medicine.

American Diabetic Association to Have Postgraduate Course

The Eleventh Postgraduate Course of the American Diabetic Association will be held January 16, 17 and 18 in Boston, Massachusetts. Dr. Danowski of Pittsburgh, Pa. is Director of this year's Course. Dr. Alexander Marble, of Boston, is Chairman of the Local Committee which arranged the program with a Faculty of 39.

The American Academy of General Practice will give 18 hours of Category II Credit for the Course. The Course is open to Doctors of Medicine. The fee is \$40 for members of the American Diabetes Association; \$75 for nonmembers. All registrants will be guests of the Association at the Banquet on Wednesday evening, January 16, which will be preceded by a Social Hour (by subscription). Charles H. Best, C.B.E., M.D., F.R.S., Honorary President of the Association, will speak at the Banquet.

Additional data and registration forms may be secured from:

American Diabetes Association
1 East 45th Street
New York 17, New York



O B I T U A R Y

Death Takes Prominent Physician

DR. CHARLES PHILLIPS WICKARD, aged 50, of 6 Berrywood Circle, Little Rock, an obstetrician and gynecologist, died November 19 at his home.

Dr. Wickard was a graduate of the University of Arkansas School of Medicine and had practiced 22 years. He was in practice with Dr. Clyde D. Rogers and Dr. Melvin R. McCaskill.

He was a fellow of the American College of Obstetrics and Gynecology, a member of the Arkansas Obstetrics and Gynecology Society, the Pulaski County Medical Society and the American Medical Association. He was on the staffs of St. Vincent Infirmary and Arkansas Baptist Hospital.

He had lived at Little Rock since 1914 and graduated from Little Rock High School. During World War II he served in the Pacific and received the Purple Heart and Silver Star.

Dr. M. T. Crow Succumbs at 85

DR. MARVIN THACKER CROW, 85, longtime physician, died at his home in Warren. He had practiced medicine in Arkansas for over half a century.

Dr. Crow was born in Ashley County and attended medical school at Little Rock, later graduating from the medical school at the University of Alabama. He practiced medicine in Bradley County from 1912-18 and in Waldron from 1921-25. He returned to Warren in 1925 and retired five years ago.

He was a Methodist and a Mason.

ANSWER—Electrocardiogram of the Month

RATE: 60 RHYTHM: A-V Nodal

PR: — sec. QRS: .08 sec. QT: .4 sec.

INTERPRETATION: Abnormal. Inverted P waves after each QRS. Nodal rhythm. Non-specific RS-T, T changes. Probable LVH on basis of voltage.

COMMENT:

This patient was studied at great length in hospital and no definite diagnosis of his illness could be determined. He was considered to have some form of collagen disease. The electrocardiogram is one of several made during his hospitalization and is a good example of nodal rhythm. He presented several other arrhythmias during hospitalization suggesting presence of primary cardiac amyloidosis, but this diagnosis could not be determined.

ANSWER—What Is Your Diagnosis?

5 MONTHS OLD WHITE MALE

Cyanosis, especially with crying since soon after birth gradually increasing in severity. On examination he was somewhat cyanotic even at rest. Heart was not definitely enlarged but there was a harsh systolic murmur heard best at the left parasternal area. Electrocardiogram showed marked right ventricular hypertrophy.

DIAGNOSIS: Tetralogy of Fallot.

X-RAY FEATURES: The lung fields show decreased pulmonary vascularity and in the lateral view no normal pulmonary artery shadow is visible. There is enlargement of the right ventricle as indicated by elevation of the apex on the PA view. The right superior mediastinal enlargement is due to a right-sided aorta which occurs in about 20 to 25% of these cases. There is increased concavity along the left upper cardiac border in the normal location of the main pulmonary artery.



PERSONAL AND NEWS ITEMS

Dr. Ramsey, Jr., is Medical Director of Child Development Center

Dr. Rex Ramsey, Jr., a native of Nashville, Arkansas, joined the staff of the Arkansas State Board of Health at the Arkansas Child Development Center on August 1, 1962. Dr. Ramsey is a graduate of the University of Arkansas, and received his M.D. degree from Tulane University. He was in the private practice of Pediatrics in Florida before returning to Arkansas. He is serving as Medical Director of the Child Development Center, and a Pediatric Consultant in the Maternal and Child Health Division of the State Board of Health.

Arkansas Physician Heads California Hospital Foundation

The Medical Staff of Sierra Madre Community Hospital Foundation in California have named Thomas R. Pickren, M.D. as the president and chief-of-staff for 1962. Dr. Pickren, a native of Salem, Arkansas, attended the Arkansas Polytechnic College before entering and graduating from the University of Arkansas School of Medicine in 1944.

Baptist Hospital Staff Officers Named

Dr. Curry Bradburn was named chief of staff at Arkansas Baptist Hospital recently. Other officers include Dr. Walter O'Neal, vice chief of staff, and Dr. John Wassell, secretary. Dr. Howard Schwander was chosen chief-elect.

Wilmot Honors Dr. Crandall

Dr. M. C. Crandall was honored by his home town in a special Appreciation Dinner in Wilmot. The Lion's Club sponsored the event. Dr. Crandall has practiced there since October 1912 — except for a tour of duty in the Medical Corps during World War I.

He served as Secretary of the Southeast Arkansas Medical Society for 25 years. He is president of the Wilmot School Board and has been for

35 years. He is a charter member of the Lion's Club there.

Dr. W. R. Beaty Moves to Lewisville

Dr. W. R. Beaty, formerly of Murfreesboro, Arkansas, has moved his office to Lewisville, for the practice of medicine and surgery. He is a graduate of the University of Arkansas School of Medicine in Little Rock.

Dr. Lloyd Hollister to be Associated With Monroe Clinic

Dr. Howard Monroe announces the association of Dr. Lloyd Hollister, formerly of Little Rock, with the Monroe Clinic in Mountain View.

Dr. Hollister is a 1958 graduate of the University of Arkansas School of Medicine. His pre-medical training was at Vanderbilt University and Hendrix College. He interned at Arkansas Baptist Hospital and served in the U. S. Army.

Dr. J. Harry Hayes, Jr. Opens Office in Little Rock

Dr. J. Harry Hayes, Jr., recently opened an office in Little Rock for the practice of plastic and reconstructive surgery. Dr. Hayes finished his plastic surgery training at the New York Hospital, Cornell Medical Center in New York City and then spent a year at the Plastic Surgery and Maxillo Facial Unit in the Queen Victoria Hospital, East Grinstead, Sussex England.

AAGP Elects New Officers

Dr. Ross E. Maynard of Pine Bluff was named president of the Arkansas Academy of General Practice. Dr. John R. Wassell of Little Rock, was named president-elect, Dr. Thomas D. Honeycutt of Little Rock, secretary-treasurer and Dr. Clarence L. Glenn of Fort Smith, as director.

St. Louis Surgeon Speaks at AAGP

Dr. Harvey R. Bernard, an associate professor of surgery at Washington University spoke at the Arkansas Academy of General Practice meeting in Little Rock on the subject of "Staph Infec-

tions.” Dr. Bernard is on the staff of Barnes Hospital where he practices and teaches.

**New Washington County
Medical Director Named**

Dr. Paul K. Heerwagen, Jr. has been named Washington County Medical Director. Dr. Heerwagen began his duties in October. He is a graduate of the University of Arkansas Medical School and a native of Fayetteville. He has

practiced medicine in Texas and Oklahoma for the past 10 years. A veteran of World War II, he was graduated from the University with a B.S. degree in 1948. He graduated from medical school in 1952.

New Doctor at Mulberry

Robert Lee Calaway, M.D. has established his office at Mulberry, Arkansas. Dr. Calaway came to Mulberry from Batesville, Arkansas.



PROCEEDINGS OF SOCIETIES

The Craighead-Poinsett Medical Society met on Wednesday, November 7th at the Jonesboro Country Club. Speakers for the program were Dr. Thurman Crawford of Memphis, Tennessee whose subject was “Marie-Strumpell Arthritis” and Dr. Robert Fritz of Jonesboro who spoke on “Peridontia”.

**Contributors To The
AMA-Education And Research Foundation
for the month of October 1962**

Dr. Daniel H. Autry, Little Rock.....	\$ 25.00
Harold H. Chakales, Little Rock.....	10.00
Dr. Ralph A. Downs, Fort Smith.....	25.00
Dr. Eldon Fairley, Osceola.....	100.00
Dr. Julian Fairley, Osceola.....	100.00
Dr. John T. Gray, Jonesboro.....	10.00
Dr. John F. Guenther, Mountain Home.....	10.00
Dr. Julius Hellums, Dumas.....	10.00
Dr. John G. Howard, Jr., Little Rock.....	25.00
Independence County Medical Society.....	100.00
Dr. Ralph F. Joseph, Walnut Ridge.....	25.00
Dr. Douglas Lowrey, Russellville.....	10.00
Dr. Richard M. Logue, Little Rock.....	10.00
Dr. Porter R. Rodgers, Searcy.....	25.00

Dr. Floyd A. Smith, Jr., Trumann.....	10.00
Dr. Charles E. Tommey, El Dorado.....	7.50
Dr. David M. Williams, Russellville.....	10.00
Dr. David M. Yocum, El Dorado.....	7.50
TOTAL.....	\$520.00

**Contributors To The
American Medical Association Education and
Research Foundation From Arkansas
for the month of September, 1962**

Dr. LeMon Clark, Fayetteville.....	\$ 25.00
Dr. Joseph E. Cross, DeWitt.....	10.00
Dr. Austin Doren, Smackover.....	15.00
Dr. Jacob P. Ellis, El Dorado.....	5.00
Dr. Jean C. Gladden, Harrison.....	25.00
Dr. F. M. Lockwood, Fort Smith.....	10.00
Dr. Morris A. Jackson, Little Rock.....	10.00
Dr. J. H. McCurry, Cash.....	25.00
Dr. J. J. Monfort, Batesville.....	25.00
Dr. Ben O. Price, Little Rock.....	10.00
Dr. W. S. Riley, El Dorado.....	3.00
Dr. Francis J. Scully, Hot Springs.....	5.00
John H. Smith, Fort Smith.....	5.00
Dr. Robert J. Thompson, Fort Smith.....	25.00
Union County Medical Auxiliary, El Dorado.....	5.00
TOTAL.....	\$203.00

NEW MEMBERS

Miller County Medical Society announces that DR. HERBERT B. WREN has been accepted for membership. A native of Shreveport, Louisiana, he received a B.S. degree from Tulane University. His M.D. degree was received from Tulane University in 1954. He interned at the University of Colorado from 1954 until 1955; he served in the U. S. Navy from 1955 until 1957; from 1957 until 1962 he was a resident in surgery and thoracic surgery at Charity Hospital, New Orleans, Louisiana. Dr. Wren's office is located at 619 Main in Texarkana, Arkansas.

DR. ROBERT BENAFIELD is a new member of Faulkner County Medical Society. He is a native of Coy, Arkansas, and his pre-medical education was obtained from Hendrix College in Conway, Arkansas. In 1961 he received his M.D. degree from the University of Arkansas School of Medicine. Dr. Benafield is a general practitioner with his office at 919 Locust, Conway, Arkansas.

A new member of Ashley County Medical Society is DR. FREDERICK H. REY. He is a native of Nashville, Tennessee, and his preliminary education was received from the University of Tennessee at Knoxville, Tennessee. Dr. Rey's M.D. degree was received from the University of Tennessee in 1961. He served his internship at Roanoke Memorial Hospital in Roanoke, Virginia. He has his office at the Wilmot Medical Center in Wilmot. He is a general practitioner.

Pulaski County Medical Society announces that DR. FREDERICK B. BERRY has been added to its roster of members. He is a native of Honolulu, Hawaii. His pre-medical education was received from Ouachita Baptist College and from

Tulane University. In 1949 he received his M.D. degree from Tulane University. He served his internship at Charity Hospital in New Orleans, Louisiana. He was a general surgery resident at Baptist Memorial Hospital in Memphis, Tennessee, from 1952 until 1954; he served a general surgery residency at US Veterans Administration Hospital in Little Rock from 1954 until 1956; from 1958 until 1960 he completed a thoracic surgery residency at the University of Michigan in Ann Arbor, Michigan. He has practiced in New Orleans, Louisiana; in Benton, Arkansas, and in Little Rock, Arkansas. His office is located at 1302 West 6th Street in Little Rock.



BOOK REVIEWS

GYNECOLOGIC AND OBSTETRIC PATHOLOGY, Fifth Edition, by Edmund R. Novak, A.B., M.D., Assistant Professor of Gynecology, The Johns Hopkins Medical School; Gynecologist, Johns-Hopkins, Bon Secours, Hospital for the Women of Maryland, and Union Memorial Hospitals, Baltimore, Maryland, and J. Donald Woodruff, B.S., M.D., Associate Professor of Gynecology, The Johns Hopkins Medical School; Associate Professor of Pathology, The Johns Hopkins Medical School; Gynecologist, Johns Hopkins and Union Memorial Hospital, Chief of Gynecology, Hospital for the Women of Maryland, Baltimore, Maryland illustrated, pp. 713, published by W. B. Saunders Company, Philadelphia and London, 1962.

This is an excellent review of obstetrics and gynecologic pathology. It is actually encyclopedic in its thoroughness. The book is very readable. There are many illustrations. There are a large number of references. The format of the book is rather conventional. This text is heartily recommended to obstetricians, gynecologists, medical students and practicing physicians. AK

Ciba Foundation Symposium on RENAL BIOPSY, Clinical and Pathological Significance, Editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Margaret P. Caweron, M.A., pp. 395, illustrated, published by Little, Brown and Company, Boston, 1962.

Renal biopsy has become a fairly commonplace procedure. It has enabled the pathologists to make diagnoses formerly impossible to make by clinical methods. The Ciba Foundation Symposium on renal biopsies is excellent. There is a discussion of the fine structure of the kidneys as seen using the electron microscope. The clinical discussions include the nephritic diseases as pyelonephritis, lupus nephritis; the nephritic syndrome is also discussed. The illustrations are excellent. The discussions by the other members of the symposium are easy to read and high-

light the important parts of the discussant's paper. This book is heartily recommended to internists and to medical students as a reference book. It is of great interest to the pathologist and the urologist. AK

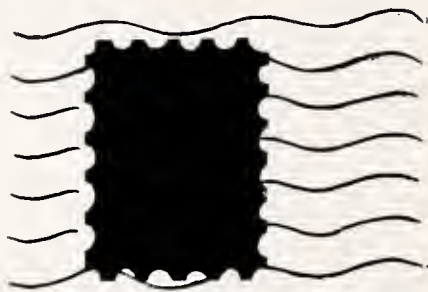
THE EXOCRINE PANCREAS, edited by A. V. S. de Renck, M.Sc., D.I.C., A.R.C.S. and Margaret P. Cameron, M.A., pp. 390, illustrated, published by Little, Brown and Company, Boston, Massachusetts, 1962.

This book is excellently written and edited but is of limited interest to the practicing physician. There is a remarkable discussion of the fine structure of pancreatic cells. There are excellent electron photo micrographs. The histo chemistry of pancreatic excretion cells is an excellent discussion. There is a chapter on secretion fluids and electrolytes. The regulation of pancreatic secretion is well treated. This book is of interest to the internist and the research physiologist. AK

DOCTOR AND PATIENT AND THE LAW, Fourth Edition, by C. Joseph Stetter, LL.B., LL.M. Member, Bar of District of Columbia and of Illinois; General Counsel and Director of Legal and Socio-Economic Division, American Medical Association, Chicago, Ill. and Alan R. Moritz, A. M., Sc.D., M.D., Professor of Pathology and Director of the Institute of Pathology, Western Reserve University, Cleveland, Ohio. pp. 529, Published by the C. V. Mosby Company, St. Louis, 1962.

This text book on medical legal matters is authoritatively written and is an outstanding text in its field. It has excellent bibliographies. Many aspects of medical legal affairs are discussed. Of particular importance are the chapters on the rights and responsibilities of patients and physicians; this discusses liability for unauthorized treatment. Autopsies, the relationship between the physician and the patient, and proceedings affecting the mentally ill. There are some excellent chapters on professional liability. This is a very worthwhile text and heartily recommended to all physicians. AK

LETTERS



TO THE EDITOR

Karachi Pakistan
November 6, 1962

To the Editor,
Journal of the Arkansas Medical Society
Little Rock, Arkansas
Dear Alfred:

I am pleased that I was given the opportunity to come on this World Mission as one of the four official representatives of the United States to the World Medical Association which is meeting in New Delhi, India and representing 56 Nations of the World.

So far my stops have included Paris, Rome, Cairo, Egypt and am now in Karachi, West Pakistan. I had a particularly delightful experience in Rome as the house guest of the famous Composer-Conductor Alfonso D'Artego who now lives in Rome. D'Artego, as you know, was the originator of the Carnegie Hall Pop Concerts with the New York Philharmonic Orchestra. He was the conductor of the Orchestra of the Air in America. He and his wife, Vita, were unusually kind to me in Rome.

I attended the Pakistan Medical Association Meeting in Hyderabad, West Pakistan. The Russians, to our surprise, also attended and offered some free scholarships to Pakistan Medical students. It was my opportunity to visit with the Russian physicians and smoke their cigarettes while they smoked my American cigarettes. I found them real affable fellows and quite intelligent. The Minister of Health for the state of Georgia in the U.S.S.R. was the chief representative. He wants to come to America to look at our Medical system. I have invited him to come and told him we would be pleased to have him and show him our medical system. He, in turn, invited me to Russia.

Yesterday, I went with Dr. George Fister, President of the American Medical Association, to Rawalpindi, the Capital of Pakistan. We were invited by Lt. General S. M. A. Faruki, who is head of the medical system in Pakistan. He recently was our guest in Chicago. He took us to the Palace where we had a long visit with President Mohammed Ayub Khan in his private office. Our conversation with President Ayub dealt mostly with the need for birth control. The president called our attention to the rapid expansion of population in Asia and said it was not morally right to have people born to a life of poverty, starvation and misery. Poverty is terrible in this area. He asked us to encourage our profession to develop a cheap injection or medication to prevent reproduction.

The people of Pakistan are our friends and they resent our military aid to India, because they are afraid the Indians will ultimately use this same military aid they are getting from the U.S. against Pakistan. As you know, these people are Moslems, while the people of India are Hindu. These people are very friendly and kind people. They do not drink any alcoholic beverages. The hotels in this country are very primitive and you certainly have to be careful about what you eat and drink. Sanitation, in general, is very poor.

It is my thought that you might want to pass on these observations to your readers.

With warm personal regards, I am

Sincerely,

R. B. "Bob" Robins, M.D.

November 8, 1962

Dr. Alfred Kahn
Editor, State Medical Journal
Sixth and Pulaski Streets
Little Rock, Arkansas

Dear Dr. Kahn:

As we approach the end of the year it occurs to me that some of your members might consider favorably a tax-deductible donation to the Arkansas Science Fair Association, Inc.

The Association, through contributions of individuals, organizations, and industry, sent three Arkansas representatives to the National Science Fair at Seattle in May of this year. We were well represented. One young man won three first place awards—the Air Force Aerospace Award,

the Navy Award, and the Atomic Energy Commission Award—as well as second place in chemistry. Another Arkansas student won a fourth place award in Botany.

These are impressive results at the National Fair that reflect favorably on the State and its educational program. We need such recognition to stimulate the interest of upcoming young scientists.

We invite consideration at this time of contributions to the Arkansas Science Fair Association. Support is needed if we are to continue offering young people the opportunity to represent Arkansas at the National Science Fair.

Checks may be mailed to the undersigned.

Sincerely yours,

Lowell F. Bailey, Treasurer

Arkansas Science Fair Association, Inc.

University of Arkansas

Fayetteville, Arkansas

LFB: fb

October 31, 1962

The Journal of The Arkansas Medical Society
Fort Smith, Arkansas

Letter to the Editor:

In the September issue of The Journal of the Arkansas Medical Society, there appeared the editorial *The Intern Program is a Failure This Year*.

This letter is a reply to the above editorial. One feels after reading this article that the students of the University of Arkansas Medical Center have let down the state of Arkansas this year, especially the hospitals in Arkansas and its practicing physicians. This seems unfair to the student.

The purpose of the Medical Center is not to train interns for the hospitals in Arkansas, but to train the complete physician. Numerous medical students have gone out of the state to secure their internship this year. I cannot see that the student should be criticized for this action, because it gives him a much more cosmopolitan view of medicine. The way medicine is practiced in Arkansas is good, but there are other ways of treating patients that are equally

good. One medical student commented to me that he was surprised that digitization with digitoxin, as I used it, seemed almost comparable to the way he was taught. Only by rubbing elbows with men from other medical centers will the student acquire a cosmopolitan viewpoint. It seems very provincial to me to discuss methods of forcing the student to take all of his training in Arkansas to “sell him on Arkansas.” We should be more concerned for the student.

If the hospitals in Arkansas lack interns, then the blame should be laid at the door of the personnel director of the respective hospital. What training program does the hospital have? What living quarters are provided? What kind of meals are served? The personnel director must remember this is a buyer's market. He must advertise to secure interns. He should visit the seniors in medical schools in Oklahoma, Tennessee, and Texas and “sell them on Arkansas.” A doctor from the University of Oklahoma, who interned in Arkansas and is practicing here, told me the students back there didn't even know what hospitals exist in Little Rock. Once he came here he liked our system and is now a physician in Arkansas.

The problem of the student is to acquire the best medical training he can, whether it be in Arkansas, Louisiana, or Timbuctu. The problem of the personnel director of the hospital is to acquire interns, whether they are from Arkansas, Missouri, or Timbuctu and he should awaken to his problem before July 1st.

Sincerely,

A. Meryl Grasse, M.D.

Reply to “Letter to the Editor”

The purpose of the editorial is to point out that there is another side to the coin in training in a state supported post graduate school, namely, as it is a terribly expensive program, does the state get value received? It is always difficult to equate the individuals rights against the states. Actually, we would not attempt to solve such a knotty problem, but it does seem fair, every once in a while, to consider this in the presence of a failure in the intern program as last year. Coercive measures are certainly undesirable, but there can certainly be nothing wrong, as Dr. Grasse points out, with trying to sell medical students and interns on Arkansas hospitals, in fact this seems to be necessary.—The Editor



Sponsored by Arkansas Tuberculosis Association

**SPONTANEOUS PNEUMOTHORAX
COMPLICATING CAVITARY
TUBERCULOSIS**

Catheter drainage and suction are recommended in the treatment of spontaneous pneumothorax in tuberculous patients as well as in nontuberculous patients. In this serious complication, immediate treatment is important, but the need for immediate resection is rare.

Spontaneous pneumothorax, an important and dangerous complication of pulmonary tuberculosis occurring in from 1 to 3 per cent of hospitalized tuberculous patients, requires immediate treatment.

While the accepted treatment of a non-tuberculous patient with spontaneous pneumothorax is prompt catheter suction and drainage, it had seemed to us that pneumothorax resulting from a rupture of a tuberculous lesion might best be treated in certain instances by immediate pulmonary resection. The present study was initially begun to test this theory, but since almost all of the patients seen had bilateral disease, they were considered unsuitable for immediate resection.

We were agreeably surprised to find that the results of immediate catheter drainage and suction were good and the possible indications for immediate resection rare.

In the series were 28 patients with active tuberculosis and spontaneous pneumothorax. Eleven of these patients were treated without catheter drainage prior to our involvement in 1956. Seventeen have been treated since that time with catheter drainage.

Of the 28 patients, 20 were admitted to the Tuberculosis Sanatorium of the Baltimore City Hospitals with spontaneous pneumothorax and tuberculosis, eight developed pneumothoraces

in the hospital while under medical therapy. The age ranged from 15 to 64 years.

ONSET OF PNEUMOTHORAX

The onset of spontaneous pneumothorax is usually marked by pain and dyspnea. One patient reported to the hospital with the sudden onset of weakness. The pain pattern was mostly pleuritic and on the side of the pneumothorax. Two women, who complained of severe pain and only minimal shortness of breath, stated that the pain was chiefly abdominal and knife-like. Eight patients with developed pneumothoraces were admitted in whom history of onset could not be elicited. They came to the hospital for fever, cough, and generalized weakness. X-ray examination on admission usually showed a hydro-pneumothorax.

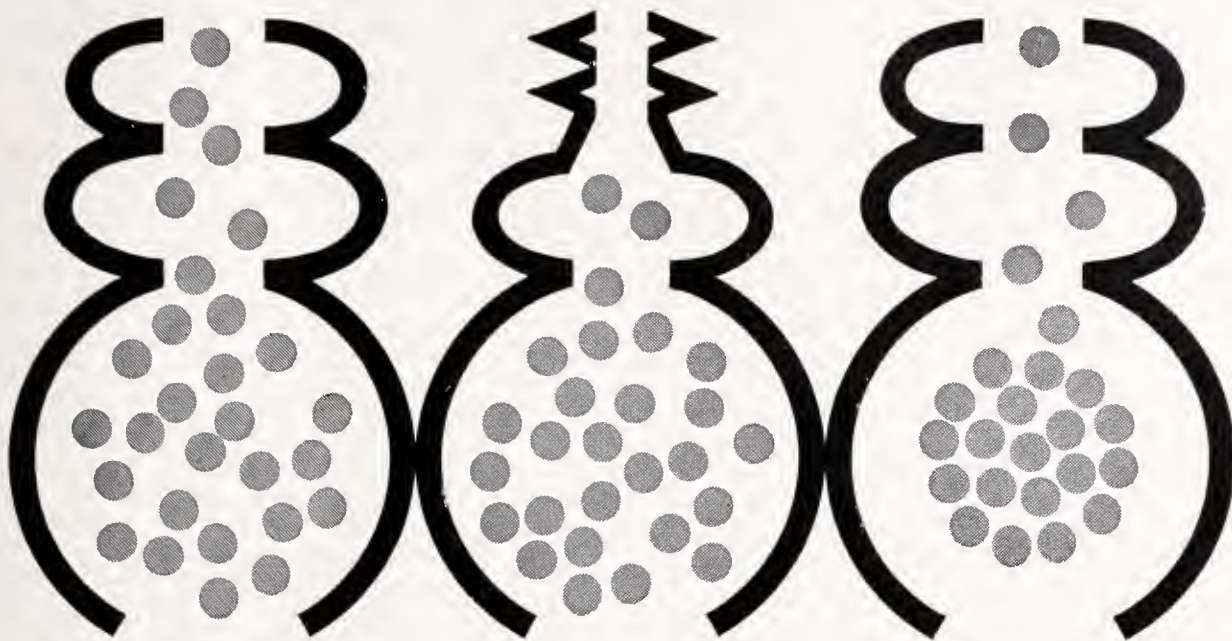
The probable onset of spontaneous pneumothorax in the 20 patients admitted with the condition was from three hours to nine months prior to admission. The time of onset in the eight patients who developed pneumothorax in the hospital varied from 10 days to five months after admission, the occurrence more often being early than late. Three patients had spontaneous pneumothoraces occurring successively on the two sides. In one of these there was some overlap which required the use of chest tubes in both sides simultaneously. All three patients recovered.

All of these patients were treated with antimicrobials consisting of combinations of isoniazid, para-aminosalicylic acid (PAS), streptomycin, and viomycin.

In 11 patients chest fluid was cultured and from five of these *Mycobacterium tuberculosis* was cultured. The presence of recoverable tubercle bacilli from the chest fluid did not significantly influence the outcome of the disease.

There is little doubt today that the treatment of pneumothorax in association with tuberculosis calls for immediate and prompt negative pressure

ROBERT J. WILDER, M.D.; EDMUND G. BEACHAM, M.D.; and MARK M. RAVITCH, M.D.; *The Journal of Thoracic and Cardiovascular Surgery*, May, 1962.



lowers motility | relieves cramping | stops diarrhea

LOMOTIL[®] Antidiarrheal tablets and liquid

(brand of diphenoxylate hydrochloride with atropine sulfate)

Traditionally the most effective means of slowing excess intestinal motility in diarrhea and so of relieving the disorder have been the opium derivatives. Now Lomotil makes available an antidiarrheal agent¹ of greater therapeutic efficiency than morphine.

By controlling hypermotility, the basic mechanical dysfunction of diarrhea, Lomotil reduces the frequency and fluidity of stools, diminishes cramping and controls diarrhea in many patients in whom other drugs have proved inadequate.

In a recent clinical report Cayer and Sohmer² state: "The alleviation of symptoms [with Lomotil] was usually prompt, occurring within 24 to 72 hours even in the long-standing chronic cases. . . . A surprisingly satisfactory response was obtained in 75 per cent of the patients with regional enteritis and in 63 per cent of those with ulcerative colitis, all of whom had failed to respond to other measures."

The high therapeutic efficiency of Lomotil, its safety, convenience and economy may be used to advantage in acute or chronic diarrhea.

Dosage: For adults the recommended initial dosage is two tablets (2.5 mg. each) three or four times daily. Maintenance dosage may be as low as two tablets daily.

Lomotil is supplied as unscored, uncoated white tablets of 2.5 mg. and as liquid containing 2.5 mg. in each 5 cc. A subtherapeutic amount of atropine sulfate (0.025 mg.) is added to each tablet and each 5 cc. of the liquid to discourage deliberate overdose. Recommended dosage schedules should not be exceeded.

Note: Lomotil is an exempt preparation under Federal narcotic statutes.

Detailed information and directions for use in children and adults are available in Physicians' Product Brochure No. 81. G. D. Searle & Co., P. O. Box 5110, Chicago 80, Illinois.

1. Janssen, P. A. J., and Jageneau, A. H.: A New Series of Potent Analgesics: Dextro 2:2-Diphenyl-3-Methyl-4-Morpholino-Butyrylpyrrolidine and Related Amides. I. Chemical Structure and Pharmacological Activity, *J. Pharm. Pharmacol.* 9:381-400 (June) 1957.
2. Cayer, D., and Sohmer, M. F.: Long-Term Clinical Studies with a New Constipating Drug, Diphenoxylate Hydrochloride, *N. Carolina Med. J.* 22:600-604 (Dec.) 1961.

G. D. SEARLE & CO. *Research in the Service of Medicine*

catheter drainage of the pleural cavity. Five of the 11 patients in whom catheter drainage was not used succumbed in the early period.

TISSUE COLLAPSE PRESENTS THREAT

In some patients the collapse of functioning pulmonary tissue represents the immediate threat to life.

Prolongation of ineffectual treatment of empyema, tuberculous or not, results in a chronic empyema with a thickened ring, contracted interspaces, and a rigid chest wall. In such instances, decortication, even if the underlying lung permits, does not always result in good function. The additional hazard of multiple operative procedures is also present. Thus the price of delaying catheter drainage and rapid re-expansion of the lung may be a total thoracoplasty with or without pleuropneumectomy.

Recovery of a tuberculous patient with a spontaneous pneumothorax without specific treatment for the pneumothorax is possible but is not to be relied upon. In the 17 patients in this series treated with prompt and vigorous catheter drainage there were no immediate deaths and only one late death. There were seven deaths in 11 patients who did not have catheter treatment, five deaths being immediate and two late.

Small tubes or catheters cannot be relied upon for the treatment of pneumothorax secondary to tuberculosis.

In four patients, immediate catheter drainage and suction was not successful. In two patients the collapsed lung failed to expand. These two

patients developed subcutaneous emphysema. It was obvious that the catheters inserted were either not large enough, or not properly placed to evacuate the continuing air leak which forced its way interstitially. One of these patients finally underwent a successful thoracoplasty with obliteration of the air-containing space and the second patient was successfully treated with a right upper lobectomy, decortication, and four-rib thoracoplasty. Although these patients ultimately did well, more expert use of catheter suction would have simplified their care. In the other two patients in whom catheter drainage and suction were considered to be unsuccessful, the lung re-expanded, but it was not possible to maintain the re-expansion after varying periods of success. The bronchopleural fistulas remained open and empyema ultimately developed.

The experience with one patient directed our attention to the possibility that pneumothorax resulting from the rupture of a tuberculous lesion might best be treated in certain instances by immediate pulmonary resection before the patient's general health deteriorated. However, the total experience with this group of patients suggests that early resection will rarely be required. In another case, the patient's general condition improved markedly during the period of catheter drainage and antituberculosis drugs.

It is probably only in a rare occasion that immediate pulmonary resection for spontaneous pneumothorax with complicating tuberculosis might be considered necessary.

February, 1963

THE JOURNAL OF THE *L*Arkansas MEDICAL SOCIETY

Vol. 59 No. 9

FORT SMITH, ARKANSAS

87th ANNUAL
ARKANSAS MEDICAL
LITTLE ROCK, ARKANSAS

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FEB 22 1963

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SINGLE-ENTITY, NON-NARCOTIC

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(levopropoxyphene, Lilly) (as the napsylate)

EFFECTIVELY CONTROLS USELESS COUGH WITHOUT ADDED OPIATES

This is a reminder advertisement. For adequate information for use, please consult manufacturer's literature. Eli Lilly and Company, Indianapolis 6, Indiana.

Lilly

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**in severe respiratory infections
refractory to other measures..**

CHLOROMYCETIN[®]

(chloramphenicol, Parke-Davis)

**for established
clinical efficacy against
susceptible organisms¹⁻¹⁴**



In Friedlander's Pneumonia^{3,13}

Although the prognosis in Friedlander's pneumonia is poor, treatment with CHLOROMYCETIN has shown a good response when susceptible strains of *Klebsiella pneumoniae* are incriminated.

In *Hemophilus Influenzae* Pneumonia^{3,4,13,14}

Because the invading organism is usually sensitive to CHLOROMYCETIN, this agent is generally effective in pneumonias caused by *H. influenzae*.

In Staphylococcal Pneumonia^{1-8,13}

CHLOROMYCETIN continues to remain effective against many resistant strains of staphylococci, and—alone or in combination with other antibiotics—should be considered when other antistaphylococcal drugs are ineffective.

In Acute Epiglottitis^{4,10,11}

This condition is most often caused by *H. influenzae*, most strains of which are sensitive to CHLOROMYCETIN. Therapy should be instituted at once, since the disease may progress from the first symptoms to a severe respiratory obstruction in four to six hours.

In Pneumonias Due to Gram-negative Bacilli⁹

Because of its broad-spectrum activity, CHLOROMYCETIN is often effective in pneumonias caused by sensitive strains of *Aerobacter*, *Proteus* of various species, *Paracolonobactrum*, and other gram-negative pathogens encountered with increasing frequency in serious respiratory tract infections.

In Staphylococcal Empyema¹²

The infiltrating lesions of staphylococcal empyema are often difficult to eradicate. While CHLOROMYCETIN should only be used when the infection has been resistant to treatment with other antistaphylococcal drugs, therapy with CHLOROMYCETIN, in conjunction with surgical procedures, will often bring favorable results.

CHLOROMYCETIN (chloramphenicol, Parke-Davis) is available in various forms, including Kapseals® of 250 mg., in bottles of 16 and 100. See package insert for details of administration and dosage.

Warning: Serious and even fatal blood dyscrasias (aplastic anemia, hypoplastic anemia, thrombocytopenia, granulocytopenia) are known to occur after the administration of chloramphenicol. Blood dyscrasias have occurred after both short-term and prolonged therapy with this drug. Bearing in mind the possibility that such reactions may occur, chloramphenicol should be used only for serious infections caused by organisms which are susceptible to its antibacterial effects. Chloramphenicol should not be used when other less potentially dangerous agents will be effective, or in the treatment of trivial infections such as colds, influenza, or viral infections of the throat, or as a prophylactic agent.

Precautions: It is essential that adequate blood studies be made during treatment with the drug. While blood studies may detect early peripheral blood changes, such as leukopenia or granulocytopenia, before they become irreversible, such studies cannot be relied upon to detect bone marrow depression prior to development of aplastic anemia.

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THERAPEUTIC APPLICATION OF RENAL PHYSIOLOGY

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IN OCTOBER 1959 A SYMPOSIUM sponsored by the Henry Ford Hospital at Detroit, Michigan was held to discuss the biology of pyelonephritis. This resulted in a publication¹ which, as stated in the introduction, is the first major attempt to synthesize existing knowledge in the field of pyelonephritis. This symposium was attended by more than eighty investigators from various disciplines, and I would like to quote Dr. Edward H. Kass in his afterthought to the symposium on pyelonephritis: "It is an odd commentary in the vagaries of investigation that for at least thirty or forty years there has been no major conference on pyelonephritis and relatively few attempts have been made to synthesize existing knowledge in this field. Although this disease has been a constant companion of the practitioner, it has been neglected by medical investigators. The reasons for the neglect are not entirely clear. One reason, surely, has been the tendency in previous years to turn all aspects of pyelonephritis over to genito-urinary surgeons. This group, therefore, conducted much investigation of the disease, but understandably, much of the work was oriented around the influence of surgically correctable factors on the pathogenesis of pyelonephritis."

It is not my purpose in this presentation to discuss pyelonephritis, but rather to discuss a wider problem which is a challenge to the urologist and, in my belief, one that is going to spell the future of urology. According to Dr. Kass, the neglect of adequate investigation of pyelonephritis was primarily because it was turned over to the genito-urinary surgeon. It is obviously not my purpose to go into personal disputes nor to discuss whether Dr. Kass' statement is correct or not, but rather to use it as a spring board to discuss the future of urology as it concerns the therapeutic application of renal physiology. Few specialists have the unique opportunity to study renal physiology and pathology as thoroughly as the urologist. The reason for this is clear. We have at our disposal the surgical tools whereby direct investigation of the individual kidney can be performed. This technical skill combined with knowledge of available methods for the study of renal physiology and pathology should leave us in a position of having all the tools presently available and necessary to advance our knowledge of human renal physiology. Personally, it is my belief that the urological specialty has adapted itself to advances in renal physiology and made use of them for improvement of our

understanding of renal pathology and diagnostic techniques. Certainly much work needs to be done and it is up to us to remain pioneers in the field of renal disease which has been, and, hopefully, will remain, a great part of the urological speciality. If we were to become reduced to technicians performing the instrumental portions of the internists work, we would indeed not be fit to carry on the challenges of the urological speciality. It is also my opinion that the urologist is a specialist in diseases of the genito-urinary system and that the treatment of disease of the urinary system as well as the male genital system should be dealt with as indicated. Whether the proper therapy is medical or surgical should be of no consequence, since the urologist should be equally competent in both areas. In days past, there was a clear distinction between surgery and internal medicine and often the surgeon was reduced to a mere technician. This dichotomy should not exist today. Specialization in an organ system requires an all-around knowledge of the specialty in question. Therapy today is not surgical if surgery is not indicated, and certainly the urological specialist must be capable of medical or surgical therapy with equal skill. To maintain and advance this, we must not only follow advances in renal physiology, but also accept a role of leadership in this field.

Time will not permit me to go into great detail regarding the possible ramifications of applied renal physiology, but rather I shall attempt to discuss some of the applications in use today, and a few of the possible applications that may have a bearing on the future.

The term osmotic diuresis is an old and well established entity, but it is only recently that the utilization of the principles involved here have been applied in postoperative care.^{2,3} The term antidiuresis is perhaps unfortunate, but it is applied to a situation where free water is reabsorbed in the collecting ducts, resulting in a concentrated urine. This phenomenon in a normal individual is caused by a rising electrolyte concentration of the serum which, in turn, stimulates the osmolar receptors to signal the posterior pituitary to produce and release antidiuretic hormones. It has been demonstrated that following trauma or as a result of pain, apprehension, fear, etc., antidiuresis is an almost inevitable result.^{4,5} The antidiuresis created from these latter stimuli is, however, not reversible by the ad-

ministration of water since it does not result from an increasing electrolyte concentration of the serum. On the contrary it will persist despite dilution of serum electrolytes. The result of this type of antidiuresis as seen, for instance, following trauma, will be edema in the face of hydration to a degree that is proportional to the amount of water given.

The urine output during antidiuresis is determined exclusively by the amount of solutes available for excretion, which with inadequate food intake is limited to the solutes liberated from the catabolism resulting from trauma and/or starvation.⁶ The urine volume during antidiuresis is thus determined primarily by the amount of solute available for excretion rather than the amount of water administered.⁷ It has been adequately demonstrated that the administration of fluids containing excretable solutes in proper concentrations will result in a urine volume that is quantitative and directly related to the amount of solute administered under conditions of antidiuresis secondary to trauma.² Urea and Mannitol have both been used for such purposes and the administration of these solutes in proper concentration will allow a fluid administration of almost any magnitude desired up to a maximum of eight to nine liters per 24 hours without any fear of overhydration. Shock or chronic renal disease will naturally invalidate this situation. It is thus feasible, immediately following trauma, to obtain a urine volume of almost any magnitude desired. This principle has been utilized to prevent post-operative clot retention by maintaining an adequate urine flow.⁸ The advantage of this procedure is that the bladder in essence is irrigated by a high urine flow. It is also possible that a high urine volume may be beneficial when nephrotoxic substances might be present, since a dilution of such in the tubules may prevent what otherwise could develop into an acute renal shutdown.⁹

The forced administration of fluids in patients with acute pyelonephritis or a ureteral obstruction caused by a stone may well be beneficial in principle. However, it is impossible to predict whether antidiuresis may be present as a result of pain, morphine administration or other factors. If such was the case, fluid retention with edema would result rather than a correspondingly high urine volume. The administration of fluids with the proper concentration of solutes such as urea

or Mannitol, however, would result in a quantitative return provided that kidney function is reasonably normal and regardless of whether anti-diuresis is present or not.

It has been demonstrated that ureteral obstruction secondary to edema following instrumentation can be readily overcome by the administration of intravenous glucose containing 4% urea.^{10,11} Administration of equal fluid volume without the presence of urea resulted in enhancement rather than release of the obstruction. It is well known that ureteral peristalsis is a result of the volume of urine presented, and it appears logical that the volume of urine presented can be adequate and predetermined only if fluids are administered containing an excretable solute. It is possible that patients will respond occasionally following a water load with an adequate output, but it is impossible to predict this and should antidiuresis be present, which often is the case, adequate urine volume will only be achieved if the administered fluid contains a proper amount of excretable solutes.

These principles then are results of applied renal physiology and certainly in our experience have been most rewarding. They do not only apply to therapy and prevention of possible renal disease but also to diagnostic procedures.

Urologists are well aware of the frequently observed low urine volume in a patient during ureteral catheterization. Even in cases where prior hydration has been quite adequate it is not uncommon to find patients where the output is exceedingly low. Such a patient is also the best possible candidate for post-instrumental pyelonephritis, or so called reflex anuria. To avoid this problem, the administration of 4% urea in 5% dextrose in water is advocated since this will result in a quantitative return with a urine volume that is dependent exclusively upon the volume of 4% urea administered in the patients with reasonably normal kidney function.¹⁰ It is obvious that this response holds true only if the patient is not in shock. It has been our experience also that renal shutdown following ureteral catheterization even with large catheters does not occur if these precautions are adhered to. It is obviously important that the administration of osmotic diuretics be done early before any renal damage has occurred.

We prefer use of osmotic diuresis in most routine cases since it is rather impossible to predict

which cases may present a problem, and also since the administration of 4% urea in 5% dextrose in water, in our experience, has never had any adverse effect.

The use of radioisotopes has gained increased acceptance in the study of the kidneys. The radioactive renogram developed by Chester Winter is a method whereby a radioiodine labeled compound is injected intravenously and by means of scintillation detectors placed over each kidney the secretory and excretory function of the individual kidney is directly traced on a moving chart.¹² This method undoubtedly has some usefulness in accessing gross differences in function between the two kidneys and is of unquestioned value regarding the diagnosis of obstructive uropathy. It certainly represents no replacement of established radiological techniques but rather an addition to our diagnostic armamentarium. Despite the relatively high initial cost the use of the renogram technique can, even with our present knowledge, undoubtedly justify the expense.

A rather new field, utilizing radioisotopes, which is still in its infancy, is renal scanning. Several methods have been developed which depend upon the elective concentration of radioisotopes in the kidney. Radio Hippuran containing I_{131} has been used¹³ as has Neohydrin which contains radioactive mercury.¹⁴ Both of these materials, however, will concentrate in the urine to an even greater extent than in the renal parenchyma and it is feared that the content of highly radioactive urine in pelvis and infundibula will obscure pathology of minor order. A newer method involves the administration of radioactive Hippuran following blocking of the ureters.^{15,16} This technique appears to be the most promising in principle since the concentration of Radio Hippuran in the pelvic urine is zero following cessation of urine flow from ureteral obstruction. The renal medulla has a radioactivity identical with serum, while the renal cortex contains an amount of five to ten times that of serum. This finding implies that a scan under such circumstances is exclusively a scan of the renal cortex. With equipment available today it should theoretically be feasible to scan areas of decreased blood flow down to a diameter of half a centimeter. This method could obviously be useful in the diagnosis of focal pyelonephritis, segmental renal ischemia, as well as smaller tumors where diagnosis by present radiological

and other techniques is difficult, if not impossible.

In the field of renal clearances, radioisotopes have also come into use. In order to perform Paraminohippurate clearances representative of effective renal plasma flow, it is essential that the serum level be kept constant so that a serum sample taken in the middle of the clearance period is representative of the serum level.

To achieve this, an infusion pump, delivering a constant amount per unit time, is essential. Many attempts have been made to do clearances by obtaining constant serum levels by a single injection subcutaneously or intramuscularly. However the volume of Paraminohippurate or similar drugs necessary for injection is rather large and no success has been obtained. The development of radioisotopes have made micro-analysis simple and permitted techniques to be developed by which constant blood levels can be obtained by the injection of as little as a tenth of a cc of Radio Hippuran intradermally. We have developed methods whereby one can inject about one hundred microcuries of Radio Hippuran and obtain constant serum levels for one to two hours.¹⁷ Clearances can then be obtained by collecting urine and a blood sample in the middle of the collection period and determining Radio Hippuran concentration using a well counter. Effective renal plasma flow determination can thus be obtained easily, rapidly and with an accuracy as good or better than with the usual colorimetric methods.

Renal disease in its various manifestations by virtue of difference in etiology and host reaction is a respected companion of all physicians, and especially the urologist.

I have referred to but a few examples within the field of renal physiology which have considerable bearing upon diagnostic procedures in the field of pyelonephritis, renal hypertension and renal tumors as well as their therapeutic and prognostic application in impending renal shut down, as well as surgically or traumatically induced disturbances in the homeostatic mechanism. The role of the kidney is seemingly endless as a vital organ involved with excretory and secretory function in addition to its possible important metabolic role in hemopoiesis; our ignorance is still vast, but the challenge is enormous.

A great wealth of data continues to accumulate regarding the biochemistry, physiology and pathology of the kidney. Our job must be to apply what is useful for prevention, diagnosis and therapy as well as to conduct and stimulate continued research to improve the present status which is far from satisfactory.

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THE TREATMENT OF BRONCHIAL ASTHMA AND EMPHYSEMA

Thomas G. Johnston, M.D.*

BRONCHIAL ASTHMA along with hay fever is the third most common chronic disease according to the Metropolitan Life Insurance Company.¹ Five thousand people in the United States are dying yearly from bronchial asthma.¹ Bronchial asthma of long standing may lead to pulmonary emphysema, pulmonary fibrosis, and cardiac failure. Emphasis is added to the importance of this allergic condition by the fact that 36,000 veterans of World War II are receiving compensation because of bronchial asthma.²

The etiology must be discovered, if possible, in order to prevent recurrences and complications. The majority of asthmatics can be greatly benefited by allergic study and treatment. It is unfair to advise the parents of an asthmatic child that he or she will "outgrow it". Without proper treatment many of these children will become pulmonary cripples. I tell parents that without treatment the only thing we can promise them their children will outgrow is "their clothing"! Just as one attempts to determine the cause of recurrent abdominal pain, one should attempt to determine the cause of recurrent attacks of bronchial asthma.

After determining the etiology, one should treat patients with bronchial asthma from three aspects: 1) Avoidance of the offending antigen (when possible) 2) Hyposensitizing injections (when indicated) 3) Symptomatic treatment.

By avoidance I mean: If the individual is allergic to a cat or dog, the animal should be removed, or if it is a food allergy such as wheat, then wheat should be eliminated from the diet. Hyposensitizing injections are given only when avoidance can not be satisfactorily accomplished. This is necessary in cases of sensitivity of pollens, mold spores, and frequently to miscellaneous dusts.

This talk will concern itself chiefly with symptomatic treatment. We must therefore try to de-

termine the pathological processes operating in each individual case. The chief factors in dyspnea in the asthmatic are: 1) Mucosal edema 2) Accumulation of thick, sticky, gelatinous mucus in the bronchi and bronchioles 3) Pulmonary congestion and 4) Bronchial narrowing (spasm?).

Sudden attacks of asthma are usually due to mucosal edema which is the outstanding factor in children and in uncomplicated adults. Epinephrine or adrenalin seems specific. Epinephrine is being used too infrequently. It is still the drug of choice in the treatment of uncomplicated bronchial asthma. Side reactions are tremor, tachycardia, nervous reactions, headache, and nausea and vomiting. Infants and children pound per pound tolerate more adrenalin than adults. In addition, the dose needed and the dose tolerated depends upon the severity of the attack.

It is much better to use small doses at frequent intervals than a large initial dose. Frequent injections of large doses of adrenalin may cause the asthma to be worse. Infants and small children are often benefited by adrenalin 1:1,000 by spray using one or two cc in a devilbiss nebulizer No. 40. Mist is sprayed in front of the nose and mouth.

To determine the most effective dose that causes the least side reactions one may use Eyer-mann's method.³ This consists of giving one minim of adrenalin per minute subcutaneously leaving the needle in place until the patient is relieved or begins to feel nervous and jittery. Eyer-mann's method is simple and practical.

Adrenalin or adrenalin-like drugs can be given subcutaneously, intramuscularly, intravenously, by aerosol, or sublingually.

The constant use of adrenalin 1:100 by spray seems contraindicated because it promotes dependence and often causes irritation of the bronchial mucous membrane. I do not use adrenalin-in-oil because it is neither as prompt nor as de-

*From the Cazort-Johnston Allergy Clinic, Little Rock, Ark.

pendable as aqueous 1:1,000 solution. Also, one is unable to gauge the dosage or to control a bad reaction.

Sublingual forms have not been very effective in my experience. Contrary to advertisements they produce a large number of side reactions.

Epinephrine in suspension (Susprine) has been used with a good deal of success by some of the pediatricians in particular.

For the patient who gets a lot of central nervous system stimulation from epinephrine we use other sympathomimetics such as Bronkephrine. Bronkephrine is much more expensive than Adrenalin but does have its occasional use.

Ephedrine, which is structurally similar to epinephrine, has the advantage over epinephrine of being effective when given by mouth and of having a longer duration of action. Ephedrine does not act as promptly, nor is it as effective as adrenalin. Nevertheless, it can be taken orally and has a longer duration of action, especially indicated by mild attacks. The only absolute contraindication is malignant hypertension. Unfortunately, side reactions, such as nervousness, tremors, tachycardia, nausea and vomiting are fairly common. Consequently barbiturates are used to offset these side reactions. We prefer racephedrine compounds because racephedrine does not cause as large amount of central nervous system stimulation that regular ephedrine causes. Ephedrine is frequently combined with phenobarbital and aminophyllin which makes a good combination for use in the asthmatic. Commonly used proprietary medicines containing this combination are Tedral, Amesec, Amodrine and Quadrinal, although the Amodrine contains racephedrin and Quadrinal has the addition of potassium iodide.

The U. S. P. dosage of $\frac{3}{8}$ gr. is usually too much. Frequently $\frac{1}{8}$ gr. or $\frac{1}{4}$ gr. will be sufficient. Children pound per pound tolerate ephedrine better than adults. One-half to one teaspoonful of ephedrine containing $\frac{1}{8}$ gr. per dram is of value in infants and children.

Aminophyllin is a very useful drug. The uncomplicated asthmatic with a normal blood pressure as a general rule responds better to adrenalin. Aminophyllin is especially useful in the elderly asthmatic, the patient with hypertension and the epinephrine-fast patient. Aminophyllin may be taken orally, rectally, intramuscularly, or intravenously. It is most effective intravenously. In-

tramuscular administration is very painful and for that reason we do not use it.

Aminophyllin is not very effective by mouth unless one uses large amounts. In using large amounts by mouth, nausea and vomiting frequently occur. At times three gr. four times daily of an enteric coated preparation will be of help to the elderly asthmatic. Also, we have found aminophyllin in an alcohol base such as Elixophyllin to be useful.

The intravenous dosage is 0.25 to 0.50 grams contained in 10 to 20 cc which should be given very slowly—no more rapidly than one cc per minute. It is given slowly to avoid circulatory collapse. Aminophyllin supposedly dilates the coronaries, and stimulates the myocardium. However, it is effective because it decreases both the venous pressure and the pulmonary congestion. Rectal suppositories of aminophyllin are often effective and work especially well at night. One should use a suppository with a low melting point base to assure maximum and quick absorption. Retention enemas of aminophyllin such as Clysmathane often work promptly and effectively.

Iodides have been known for years to loosen the thick, tenacious sputum of the asthmatic. Potassium iodide is probably the most important drug that is frequently overlooked in treating the chronic asthmatic. Potassium iodide is, in my experience, the most effective expectorant for people with bronchial asthma. We must never forget though that no expectorant can be effective in a dehydrated patient, and asthmatics are prone to keep themselves chronically dehydrated. Frequently asthmatics will respond to the addition of iodides alone where previous medication without iodides failed. The usual dosage is 10 to 15 drops of a saturated solution in water or two or three, five grain, tablets after each meal. Another method is to give the potassium iodide beginning with five drops after meals, increasing one drop per day, until tolerance or fifteen drops are taken. Sometimes to minimize side reaction we administer it for three days, stop for three days, then repeat.

Sodium iodide may be given intravenously in a dosage of 10 cc of a 10% solution. Surprisingly large doses have been given without ill effects.

The usual side reactions are acniform eruptions on the face, back, and chest; swelling of the salivary glands and rhinorrhea. Rarely granuloma-

rous lesions occur. These side reactions subside quickly after stopping the iodides. Occasionally a patient who cannot take inorganic iodides can take Organidin, organic iodide.

Syrup of hydriodic acid is especially useful in infants and children. Ephedrine sulfate in syrup of hydriodic acid makes an excellent anti-allergic cough remedy. It is also good for asthma.

Syrup of Ipecac in infants is of value in causing the infants to vomit. On vomiting they also eject mucus from the bronchial tree, because of reverse peristalsis in the bronchi.

Ammonium chloride has not been very helpful in my experience nor has Robitussin as an expectorant for our asthmatics.

Oxygen should be given only in cases of cyanosis and then only by mask or nasal catheter. I prefer the nasal catheter. The oxygen tent seems contraindicated for two reasons. First, some people have claustrophobia and have the feeling that if they are placed in a tent they are "at death's door". Second, oxygen takes away the stimulus to breathe if given in large quantities over long periods of time. A decompensated respiratory acidosis may develop as the oxygen causes decrease in the depth and rate of respiration. This is particularly dangerous in the patient with emphysema.

Sedation is an important aspect of therapy in the asthmatic. However, morphine, or any of its derivatives should never be given. Morphine depresses respiration, depresses the cough reflex, and causes bronchial narrowing permitting an accumulation of secretions. This has caused more deaths in asthmatics than any other single factor. Demerol is also contraindicated because it is habit forming, and also depresses the cough reflex and causes bronchial narrowing. Probably the safest sedatives are paraldehyde, chloral hydrate, and the barbiturates.

Paraldehyde should be given in 8 cc doses by mouth or 15 cc by rectum every four hours as needed. Chloral hydrate should be given in one-quarter to one-half gram doses during the day with one gram at night. The barbiturates usually are quite helpful in allaying apprehension. Some of the tranquilizers have seemed helpful particularly Atarax and Thorazine.

The antibiotics are needed only when there is infection. Fever, purulent sputum, elevated white count and elevated sedimentation rate in combination are good indications for their use. Be careful in giving penicillin to the asthmatic.

It would advise skin testing before it is administered.

Occasionally, we see an asthmatic who has been given almost all of the antihistamines with very little or no benefit yet has never been given adrenalin or ephedrine. The antihistamines appear to be contraindicated in many asthmatics because of their atropine-like action. Antihistamine causes the mucus to become dry and tenacious thus more difficult to be coughed up. Sometimes children will be benefited by these drugs because of the mucosa edema alone. However, ephedrine and adrenalin are almost always the choice even in children.

Anergex has been of no proven value. In fact, there is no reason to suspect it to be of any value from its chemical makeup.

Proteolytic enzymes do not seem to affect the mucous plugs. We have not been impressed with their benefit.

Steroids and ACTH should be reserved for use only when the usual measures fail. In these cases the patients are nearly always of the "intrinsic" or infectious type with inflammation being the cause, or they may be severely dehydrated. In patients who have a "cold" or respiratory infection that triggers asthma, the steroids have been a blessing.

We have found Triamcinolone (Aristocort and Kenacort) to be the most effective steroid tablet per tablet in the treatment of bronchial asthma and emphysema. In the asthmatics we start them off with two, four milligram, tablets the first dose, then, one tablet every three hours until relieved; then one tablet every six hours for two days; and then one every eight hours until a course of thirty has been finished.

For emergency use we have hydrocortisone phosphate 100 milligrams per 2 cc intravenously, which has proven to be helpful. The phosphate is 2,000 times more soluble than the acetate; thus it acts more rapidly. Some of our patients have complained of a "flushed" feeling when given rapidly.

Also, injectable Dexamethasone (Decadron) Phosphate four milligrams per cc given IM is a valuable adjunct.

Rarely we see a patient who responds better to ACTH-Gel than steroids. In this instance, we will give 80 units of ACTH-Gel IM which may need repeating.

These drugs are not a panacea for asthma. They have never "cured" a case and they never

will. They should be used only when the usual measures fail. They are not a substitute for good allergic management. They do not act quickly enough to relieve the acute asthmatic attack.

With the advent of the newer steroids we rarely need to hospitalize a patient. However, an individual who has severe intractable asthma for more than 24 hours not relieved by the usual methods should be hospitalized. The care of the patient is much easier and intravenous fluids, oxygen, parenteral medications, and others can be given without difficulty.

Climato-therapy or "move to Arizona" is indicated only in a few cases. Individuals who benefit by the warm, dry climate, are usually so-called infectious asthmatics who have frequent colds that lead to asthma. It is unfair to say to a person "move to Arizona" without a complete allergic study, as the move may not be indicated. Many people have moved to Tucson, for instance, on the advice of their physician only to develop sensitivity to sugar beet pollen, tumble weeds, and many other antigens later on. As a general rule a change improves the person for a short while, only to have recurrences. Many patients have given up their farms, quit their jobs, sold their houses, left their families and friends only to return in a few years defeated and depressed

over the recurrence of their asthma.

In summary, if a new patient enters your office with bronchial asthma who hasn't had any adrenalin or aminophyllin, take his blood pressure. If it is normal give him adrenalin; if it is elevated, use aminophyllin. Give him a preparation of ephedrine and racephedrine to take by mouth in case of recurrence along with a saturated solution of potassium iodide. Insist on a high fluid intake.

The patient may respond poorly, or only temporarily to the usual measures of adrenalin, intravenous aminophyllin, and oral (or rectal) bronchodilators and expectorants. This failure to respond may be due to respiratory infection; in such instances, antibiotics will probably be necessary. If these measures do not result in improvement within 24 hours, steroids should be used and hospitalization may be necessary. In the hospital intravenous fluids can be given to assure good hydration, and oxygen may be indicated if cyanosis is present.

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CONTACT LENSES PRO AND CON

Joseph M. Dixon, M.D.*

Presented at the meeting of the
Arkansas Medical Society,
Hot Springs, April 30, 1962.

RECENT IMPROVEMENTS IN CONTACT lenses have made them very popular and satisfactory for certain cases. Anyone who has seen high school and college girls who are self-conscious and withdrawn because of strong, thick glasses suddenly become happy, sparkling personalities with a change to contact lenses knows that these lenses will always be a part of the practice of Ophthalmology. The persistent demands of patients for information about contact lenses make it necessary for all physicians to be familiar with the subject. Some physicians, members of physicians' families and many of their patients are successfully wearing these devices. In most cases the lenses are optional with the patient and are not a medical necessity.

At the present time, contact lenses have become the most oversold, overadvertised, exaggerated, and exploited prosthesis. There is one fantastic claim that they do not touch the eye. Many are sold at enormous prices to the public by people who are totally unaware of eye pathology, bacteriology, or physiology. Unfortunately, this brings a useful product into disrepute. The contact lens is a foreign body which can produce the same eye changes that a foreign body produces in any body tissue. They can be safely worn with proper supervision, but they can also damage the eye.

Advantages

Most contact lenses are worn for *cosmetic reasons*. This group of patients consists mainly of those between the ages of 14 and 35 who are *myopic*. Girls are generally more pleased with them than boys. Many of us are surprised by the intense motivation of these patients to discard

their glasses. *Physicians cannot escape the responsibility of making sure that no harm is done.*

Patients who have had *cataract surgery* find that the contact lenses have many advantages over cataract glasses. They eliminate the restricted visual field, optical distortion, and undesirable appearance of heavy uncomfortable spectacles.

Athletes who have poor vision without glasses make excellent contact lens patients. There are also a small number of people in special occupations who benefit from the lenses, and there are a few medical indications. The usual deciding factor is whether the patient thinks the lenses are worth the trouble.

Disadvantages

The contact lens is a foreign body and is capable of producing trauma, inflammation, susceptibility to infection, scar formation, vascularization, and metabolic changes. Special additional results consist of a decrease in corneal sensation, and an increase in glare due to light refracted at the edges of the lenses. Other disadvantages are the necessity for constant medical follow-up and the time the patients must spend in developing skill in handling the lenses and becoming adapted to them. In comparison with spectacles they are generally more trouble.

Patients who are presbyopic and require reading glasses or bifocals are seldom satisfied with contact lenses.

Discussion

Contact lenses should be worn only under the following conditions:

1. A careful examination of the eyes must demonstrate to the ophthalmologist that the patient is a suitable case and free of contraindications.

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2. The lenses must fit properly and not mechanically traumatize the eyes.
3. The lenses must be kept clean, and the lens containers must be kept free of bacterial growth.
4. Patients must be forbidden to sleep with lenses on the corneas or to wear them 24 hours a day. Clinical cases and experimental animals have proven that this will produce vascularization of the cornea.
5. Lenses must not be worn in the presence of bacterial or viral infections of the external eye.
6. Periodic follow-up examinations are necessary.

Summary

1. Contact lenses have clear indications and are remarkably satisfactory in these cases.
2. There are many important medical problems associated with contact lenses.
3. It is to be expected that many improvements will be made in the structure and design of contact lenses in the future.

WHAT'S NEW?



PEDIATRICS — Behavior Problems in Children

Deane G. Baldwin, M.D.*

AT THE PRESENT TIME a revolutionary change is being made in the management of children with behavior problems, especially those who have associated learning defects. There is ever increasing evidence that the primary etiology lies in minimal organic deviations of the central nervous system. In the past the difficulty was diagnosed primarily as emotional, in spite of the fact that often one had to “create” justification for the diagnosis. This is not to say that emotional aberration is absent, indeed, any “normal” child finding himself in this situation would certainly be frustrated to the point of indiscretion.

The symptom complex in these children is varied, but in general there is an inability to learn in school associated with behavioral deviations of varying degrees. There is a whole spectrum of symptoms ranging from the sluggish child to the juvenile delinquent.

A rather typical example is the third grade child who appears quite bright in many areas but cannot read at a first grade level. He apparently does well one day and the next day seems to forget all he has learned. He cannot concentrate for any length of time and his energy is transferred to disturbing his classmates. He may be impulsive, often his parents cannot understand why he has no friends, and soon he is branded as an emotional problem.

The diagnosis of this disorder lies in the acuity of the physician who first sees the child and recognizes any of the distinguishing features men-

tioned above. If this is associated with a history suggesting possible brain injury in the perinatal period or in the early years of development then the consideration is even more justified.

At the present time the most valid tools for substantiating the diagnosis are the electroencephalogram, psychological testing, and an extended neurological examination.

The electroencephalogram may or may not be abnormal. If it is abnormal, and other signs are present, then this is a point in favor of the syndrome in question. Psychological testing, usually in the form of the Wechsler Intelligence Scale for children, affords further reliable clues. The over-all I.Q. is not as important as discrepancies between the verbal and performance I.Q.'s. “Scatter” in specific sub tests is also pronounced in these children. An extended neurological examination has been developed that detects far more subtle losses of central nervous function than previously noted in the standard neurological examinations.

The treatment of this disorder is symptomatic, and if possible, preventive. Counselling the parents and teacher will alleviate much of the difficulty. Concentrated effort in the form of remedial education brings remarkably good results. Maturity helps these children and if they are managed well in the difficult period they will often do well later. Specific management at home and in school should be guided to relieve the frustrations of all concerned, remembering that

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firmness and adherence to schedule are of great importance. This usually requires close observation for a period of time until management is running smoothly.

With all these measures, treatment is often incomplete unless help is derived from some form of drug therapy. Numerous drugs acting on the central nervous system have been made available to the physician in recent years, especially since the advent of the phenothiazene derivatives, and many have been effective in alleviating the symptoms in these children. Older drugs including central nervous system stimulants, rauwolfia derivatives, and hydantioin compounds have been available for a longer period and improved compounds of the same order have been formulated. Not all the drugs available could possibly be mentioned, but a representative sampling that have proven themselves effective will be discussed. Dexedrine and Benzedrine have long been used in "unmanageable children". Their action remains a paradox since they are generally regarded as central nervous system stimulants. In general they are effective in the child with reading problems and short attention span. Frequently these drugs are successful in the inactive sluggish child who is a poor reader. Many children experience anorexia for a few days to two weeks but then begin to eat as before. If anorexia continues the drug should then be stopped. Often good results will follow the institution of these drugs but the child may develop unpleasant side effects such as tremulousness or become jittery. In this case a newer CNS stimulant such as Tofranil may be substituted which will sometimes reverse these symptoms and continue the desired effect.

Dexedrine is usually given 5 mgm in the morning and 5 mgms at lunch. Benzedrine is generally twice this dosage as is Tofranil.

Tranquilizers such as chlorpromazine and Rauwolfia compounds occasionally facilitate management of children with poor attention span and may be efficacious in extreme and chronic excitation. Unfortunately their percentage of improvement is low and for this reason one must yield to more successful drugs. Mellaril (thiorazine hydrochloride) a relatively newer phenothiazine derivative, has been effective in dosages from 10 mgm b.i.d. to 25 mgm q.i.d. Few side effects have been noted which would contraindicate this drug except for the rare Parkinsonian like syndrome. Benadryl has long been noted to

have a calming effect on children, especially the ones who are impulsive and have little control over their behavior. However, Benadryl has the undesirable hypnotic effect. For this reason molecular alteration was done resulting in Suvren (captodiamine) with a loss of the hypnotic effect. Suvren, like Mellaril, has been found quite successful in the control of hyperkinesis, compulsiveness and reduction in attention span. Undesirable effects have been a metallic taste with some foods and an occasional rash. The former usually disappears with time. The skin rash necessitates the withdrawal of the drug. The dosage of Suvren ranges from 250 mgm to as high as 400 mgm a day.

Dilantin and related compounds have been used in this area and are especially useful in children suspected of having variant seizure activity. Indeed, on occasion, it is helpful when no seizure activity is noted at all.

Phenobarbital, peculiarly, increases irritability and is therefore not recommended in children with minimal brain damage unless it is necessary for control of seizures.

Meprobamate has not been too rewarding in these children. However, in the child with somatic complaints the drug may be of value in allaying of these symptoms.

In using these drugs the physician should consider the best drug for the patient and his symptoms. A low dose should begin the therapy and with gradual increments perhaps the desired effect can be obtained.

Drug toxicity should be looked for and immediate withdrawal should be done if suspicious symptoms occur. It is suggested that blood counts be done on patients receiving drugs at least every three months initially and then every six months after one year. If a child does not seem to show a response after a reasonable length of time and on a sufficient dose, a new drug should be instituted. One would expect good results at least by the end of a month to six weeks' therapy.

A drug never takes the place of adequate counselling with remedial education and is used only as a means of controlling the child so that he may be more receptive.

Finally, the physician should join with the psychologist and teachers to help in the early awareness of the problems and thus prevent many of the secondary behavior disorders by establishing early treatment.

TEACHING SEMINAR

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EVALUATION OF THE TUBERCULOSIS SUSPECT

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AT THE SOUTHERN TUBERCULOSIS CONFERENCE held September 17-21, 1962, in Asheville, North Carolina, David J. Sencer, M.D., Assistant Chief of the U.S. Public Health Service Communicable Disease center, spoke on the topic "Today's Challenges in Tuberculosis Case Finding". He outlined three challenges: (1) To the health officer to set up a flexible suspect detection program based on the realistic situation community by community, (2) To the private practitioner to consider tuberculosis as a possible diagnosis in undiagnosed chest conditions, and (3) To the public to decide what is best for its health considering the resources and monies available.

Dr. Sencer's challenges were published in the December 1962 issue of the Bulletin of the National Tuberculosis Association.¹ Specific medical recommendations were further outlined:

- (1) Look at TB as an acute disease. View it and handle it as a disease demanding immediate, effective action.
- (2) Stop tuberculin testing whole school populations and other captive groups. Rather, concentrate on those groups which will yield more cases—for instance, contacts of five-year-old reactors and the twelve and thirteen-year olds.

- (3) In case finding, concentrate more on productivity and less on visibility.
- (4) Gear down case-finding activities from a mass case-finding approach to one aimed at individuals at risk.
- (5) Divert attention from case finding to diagnosis and treatment. It's not so much the finding of cases that counts as getting these cases to diagnosis and treatment.

The problem of suspect detection programs which give the best yield of new active cases is a complex one. Many aspects of this problem were considered in the November 1962 issue of the Bulletin of the National Tuberculosis Association entitled "How to Find TB Today". This 16 page pamphlet is certainly recommended reading for anyone interested in organizing a program for suspect detection in any community. The Division of Tuberculosis Control of the Arkansas State Board of Health, as has been reported elsewhere, is attempting to set up a flexible program based on the differing needs of individual counties over the state. The interested support of individual physicians in each area will determine the success of this program. However, finding suspects is only the first step towards the ultimate control of tuberculosis. Suspects must be adequately evaluated and diagnosed, proven

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cases of tuberculosis must be properly treated, followed and rehabilitated, contacts to these cases must be evaluated, if we are to aim at the eradication of tuberculosis in Arkansas.

The purpose of this paper is to outline five straight-forward steps which can be taken by the private practitioner in an effort to decide about i.e. the evaluation of a tuberculosis suspect. The five categories are:

- (1) Consideration of the patient's clinical status.
- (2) Use and interpretation of the tuberculin skin test.
- (3) Comparison of the present abnormal chest x-ray with all available previous chest x-rays.
- (4) Examination of the patient's intimate associates.
- (5) Use of specific laboratory helps.

It seems obvious that the patient with an open cavitary chest lesion who is clinically ill and has a positive smear of his sputum for acid fast bacilli as well as a strongly reactive PPD intermediate strength skin test, is no diagnostic problem. His condition demands immediate definitive therapy for tuberculosis. As a matter of fact, this patient has usually come to his physician because he is clinically ill and not as a result of a suspect detection program.

The more subtle case is not so easy to handle. We must continue to be aware of the socioeconomic stigmata as well as the emotional stress to an individual and his family when even the presumptive diagnosis of tuberculosis is considered. I am sure that most practicing physicians have seen examples of individuals broken emotionally and sometimes financially because of the presumptive diagnosis of tuberculosis, even if it was later disproven. Certainly the official tuberculosis case register contains many individuals with the diagnosis of tuberculosis in whom that diagnosis has never been adequately medically established. It is our responsibility to make sure that there is a high probability each time we make this presumptive diagnosis.

A tuberculosis suspect may come to a physician from several sources: A survey x-ray unit, a hospital admission x-ray, a tuberculin skin testing program, or on his own because of suggestive clinical symptoms. Every suspect should have a full size PA and if necessary, appropriate lateral chest x-ray adequately interpreted before other steps are indicated. Much can be done by the physician who best knows the patient and his family to establish the probability of active tuber-

culosis as a diagnosis. The patient and his family can then be prepared for short or long term hospitalization depending on the situation. The patient who understands the reason for hospitalization prior to entering the hospital would certainly seem less likely to leave the hospital against medical advice.

Once it is clearly established that a person is a tuberculosis suspect and yet the diagnosis of active tuberculosis is not immediately obvious, the responsible physician should consider five steps of further evaluation.

I. THE PATIENT'S CLINICAL STATUS:

It is well known that the patient with minimal tuberculosis may have no clinical signs or symptoms. In fact, it is not unusual to discover a relatively far advanced case with little clinical evidence of his disease. On the other hand a carefully taken history will often reveal subtle symptoms of increasing fatigue and malaise, late afternoon fever, and perhaps unexplained weight loss which may well become a significant factor in deciding that a given individual has active disease. The full clinical evaluation may also reveal other chronic medical conditions such as diabetes mellitus which are known to predispose to the development of tuberculosis.

Nothing can replace the direct physician-patient relationship as the primary activity in the evaluation of the tuberculosis suspect.

II. THE TUBERCULIN SKIN TEST

It has recently been shown by Katz² that 99.76% of patients known to have active infection with human type mycobacterium tuberculosis, have a significant reaction to intermediate strength PPD. This evidence points out the value of using this simple test, the results of which are known in two days, as a means of evaluating the tuberculosis suspect. In the face of a negative reaction to PPD, especially if the test is repeated to be sure that there is no human error, the probability of active tuberculosis is very low.

Two multiple puncture techniques for tuberculosis skin testing have recently been developed, the Heaf test usually used for mass testing and the Tyne test, which because it uses disposable equipment is especially convenient for the single test. During 1962 there have been several studies in Arkansas, which are as yet unpublished, that clearly demonstrate the tendency of the multiple puncture techniques to produce false positive reactions in up to two-thirds of the instances evaluated. This means that as many as 60% of

the individuals initially reacting to the multiple puncture type test can be shown to have no reaction to intermediate strength PPD. It is not thought that these techniques give false negative results but to date this has not been evaluated on an Arkansas population. Data are accumulating which infer that the false positive reaction which occurs with the use of the multiple puncture type tests is the result of a cross hypersensitivity reaction due to infection of the individual with one of several strains of non-tuberculous mycobacterium ubiquitous in our environment. This has not been unequivocally proven but many studies are now under way to test this hypothesis.

A significantly reactive intermediate strength PPD skin test will establish a high probability that the individual has at one time in his life been infected with mycobacterium tuberculosis. A reaction to either of the multiple puncture type tests or to old tuberculin should be rechecked with intermediate strength PPD. No clinical test is perfect and certainly the tuberculin skin test is only part, although a very vital part, of the full evaluation.

III. COMPARISON OF AVAILABLE X-RAYS

When it has been established that a given individual has an abnormal chest x-ray suspicious of pulmonary tuberculosis, one of the first questions that should be raised is whether or not he has ever had a previous chest x-ray. If such an x-ray can be obtained, it should be compared with the present study by a physician competent to decide whether or not there is a changing lesion.

The presence of a static lesion over a period of months or years does not rule out active tuberculosis, but it is strong evidence in support of an inactive process. The absence of a chest lesion on a previous film helps to date the lesion now known to be present. Not only should an effort be made to obtain old chest x-ray films for comparison but in some instances where the specific lesion is clearly exudative and the diagnosis of tuberculosis is not established a follow-up film after an interval of a few weeks may be highly significant. Two lesions, non-specific pneumonia and peripheral pulmonary neoplasms may commonly mimic tuberculosis. In the first instance the lesion will probably show significant clearing. In the second instance there may well be extension of the lesion suggesting a spreading neoplasm.

The chest x-ray alone can never prove or disprove the diagnosis of active tuberculosis. On the other hand consideration of the tuberculosis suspect without thorough evaluation of all his available chest x-rays is unthinkable.

IV. EXAMINATION OF INTIMATE ASSOCIATES

To a susceptible population group, tuberculosis is a highly contagious infection. The most usual susceptible group likely to be close associates of an active case are young children. Because of the convenience and reliability of the PPD skin test as an indicator of infection with mycobacterium tuberculosis, it seems reasonable to use this test to determine whether there is evidence of infection among associates. In the circumstances where the diagnosis of active tuberculosis is doubtful, the absence of a reactor to tuberculin among young associates of the case in question is supporting evidence. If these young associates have a significant PPD reaction, this factor should be considered as evidence suggesting a definite exposure to an infectious case.

Chapman and Dyerly³ recently reported a study of the families of 202 active cases which points out the importance of this type of approach. There were 682 contacts under age 20 to these 202 cases. 47% of these contacts were found to be infected at the time of the initial diagnosis in the adult. The rate of infection was best correlated to the severity of the disease in the original case. No cases were found in which there was not at least one child in contact who was infected.

V. SPECIFIC LABORATORY HELPS

A. Bacteriological studies for tuberculosis:

It is often desirable to obtain bacteriological confirmation that a given case is inactive by negative results of sputum or other material for the tubercle bacillus. Adequate material is necessary if one is to depend on the laboratory results. To obtain an adequate specimen of sputum one must first establish that the individual is expectorating material likely to be bronchial secretions. If no history of significant expectoration can be obtained there is little to be gained by sending multiple specimens of saliva, and a false sense of security may be established. If the individual is producing sputum he should be advised to submit a fresh specimen for examination rather than a collection of large amounts of saliva and some sputum collected over several days. If there is any question concerning the reliability of the patient this

sputum specimen should be collected under specific observation.

In the instance where there is a negative history for sputum production but there is a need for bacteriological confirmation of the individual's status, other methods can be used to collect significant material. The two methods in current use in this country are the gastric washing and the use of the heated aerosol. Material obtained from the fasting stomach early in the morning gives a reliable index of the presence of tubercle bacilli in bronchial secretions. Unfortunately this material cannot be transported any great distance to a tuberculosis laboratory and remain viable. Such studies should then be done in association with a TB laboratory. The heated aerosol, if properly used will assist an individual who has no sputum to produce significant bronchial secretions. This material can be transported. Both of the special methods outlined above could best be carried out by a short term hospitalization in a tuberculosis hospital or general hospital equipped with a TB laboratory.

B. Identification of mycobacteria other than mycobacterium tuberculosis:

All positive cultures for mycobacteria should be seen by a bacteriologist trained to identify these atypical strains. This identification involves specific chemical tests and cultural techniques. The significance of these organisms must be decided in each individual case. There is no evidence to date that they cause a communicable disease in man although they are clearly associated with various disease states.

C. Skin and serologic tests for pulmonary fungi:

In instances where there is a negative PPD or other evidence against active tuberculosis but strong evidence for an active pulmonary lesion resembling tuberculosis, infection with one of the pulmonary fungi should be suspected. In Arkansas the diseases commonly encountered are Blastomycosis and Histoplasmosis.

The diagnosis of Blastomycosis is difficult to establish except by demonstration of the organism in sputum or pathologic material. The Blastomycin skin test and the complement-fixation test

using the Blastomycin antigen are notoriously unreliable. The skin tests and serologic reactions using Histoplasmin are much more fruitful.

The Histoplasmin skin test if significantly reactive carries the same meaning as a positive tuberculin, i.e., there has been an infection with *Histoplasma Capsulatum* in the given individual. The complement-fixation test, preferably done on blood obtained prior to or at the time of the administration of the skin test, is considered highly significant. Furcolow and his associates have recently reported⁴ that a titer of 1:8 in either the yeast or mycelial phase is strongly suspicious of active infection. This test in selected individuals is now available through the Arkansas State Hygienic Laboratory. An individual with a significant titer should certainly be further evaluated in a hospital equipped to do special mycotic studies.

The tuberculosis suspect evaluated as outlined above will in all probability have a diagnosis established. If the evidence is conflicting or inconclusive the consultant in chest diseases should be called upon to assist in the interpretation of the data and to suggest further means of evaluation. In some instances a proper diagnosis cannot be established without more extensive procedures such as bronchoscopy or lung biopsy.

Every tuberculosis suspect deserves a definitive diagnosis. The responsibility for guiding the individual through the medical procedures necessary to establish a diagnosis certainly lies with his family physician.

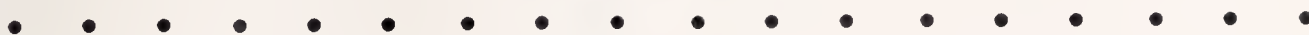
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ELECTROCARDIOGRAM

OF THE MONTH



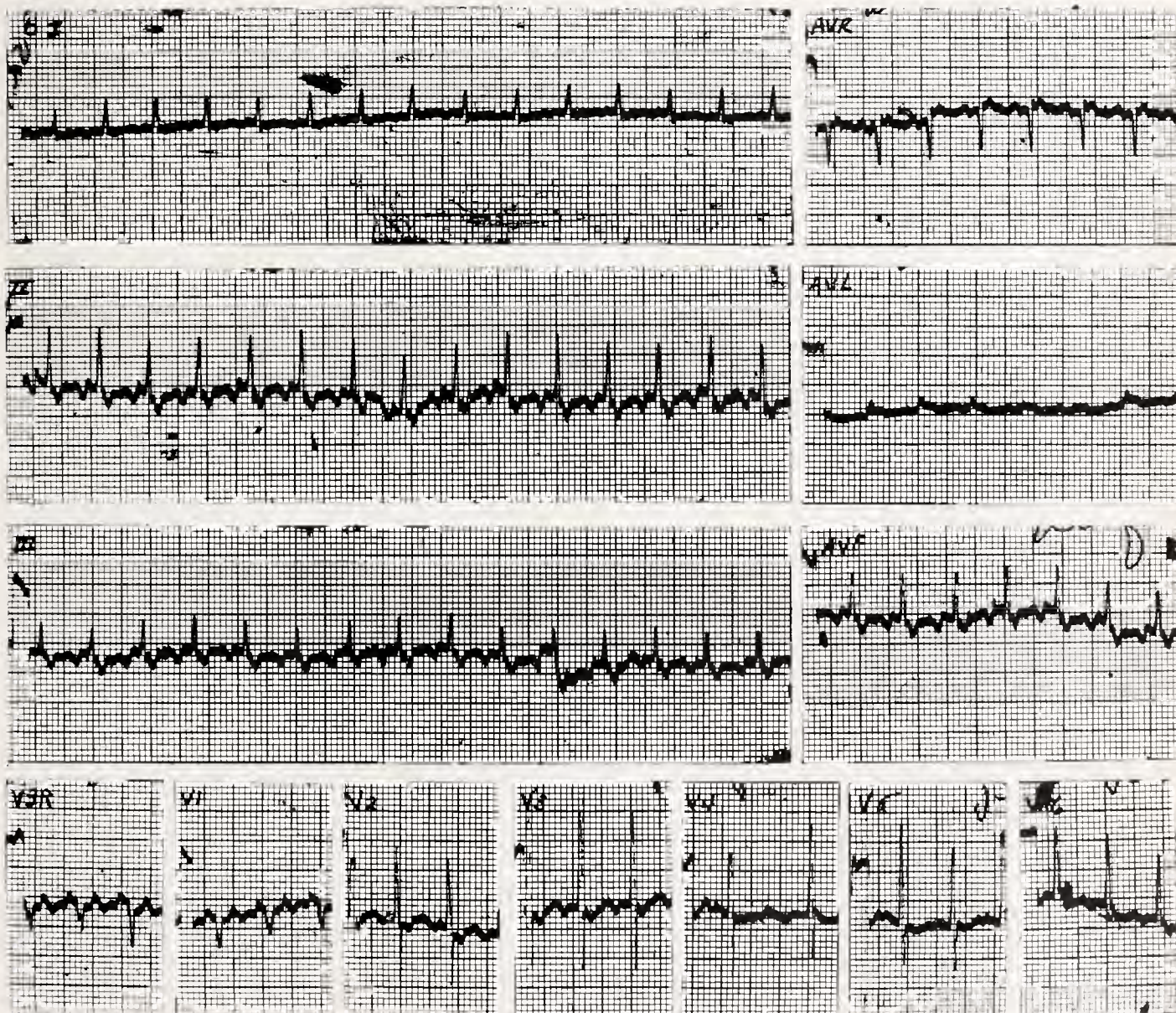
WHAT IS YOUR INTERPRETATION?

AGE: 63 SEX: M BUILD: SLENDER BLOOD PRESSURE: 132/84

MEDICATION: Digitalis, amount not known.

HISTORY: Evidence of bronchogenic carcinoma with atelectasis right lung and mediastinal shift.

Answer on Page 363



The Department of Medicine, University of Arkansas Medical Center

*James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

Answer on Page 363







PUBLIC HEALTH AT A GLANCE

The Eradication of Syphilis and the Role Of the Private Physician

SINCE 1957 THERE HAS BEEN a true increase in the occurrence of syphilis. The basis for this position rests in the following facts: The American Social Health Association reported in March 1961 that 33 states and 63 major cities reported increases in primary and secondary syphilis, whereas, only nine states and 12 major cities reported decreases. In many of the health departments that reported rising rates there had been no substantial change, either in method of control or in intensity of the control effort.

Arkansas is among the states reporting a substantial increase in the occurrence of early infectious syphilis with case reports rising from 64 cases of primary and secondary syphilis in 1957 to 263 cases in 1962.

Venereal disease control officers and syphilologists agree that to reduce the incidence of infectious syphilis and return this line to a downward trend, all cases of infectious syphilis must be reported and interviewed for sexual contacts so they may be found, examined, and treated if infected. Only by complete case reporting and interviewing can we attain real control, and progress toward eventual eradication.

Realizing the important role played by private physicians in the ultimate eradication of syphilis, a program of private physician visitation was adopted in Arkansas on January 1, 1959. It was instituted with the following objectives:

- 1) To inform the physician of current venereal disease trends and program aims.
- 2) To provide convincing factual resumes in-

tended to indicate to the physician his role in the state control program.

- 3) To encourage reporting of cases treated in private physician clinics.
- 4) To advise the physician of the many services offered to him by the State Health Department, which includes not only interviewer-investigator epidemiological services but drugs for indigent patients, darkfield microscopic and other diagnostic procedures.

Each year private physicians are realizing and understanding more and more the importance of this particular case-finding activity, and it has been exemplified by better reporting (see map for cases reported by private physicians fiscal 1962) and an increased willingness to have their patients interviewed.

Initial reluctance on the part of the medical profession to have private patients interviewed is readily understandable, however, it has been our experience that when the physician realizes the importance, purpose, nature, and confidentiality of the interview, his reluctance usually changes to cooperation.

The Interview

The contact interview is not just a casual conversation between interviewer and patient. It is a direct approach to an infected individual through a systematized technique, in confidence, for the sole purpose of obtaining information as to his or her sex activities, in order that these persons may be located, brought to diagnosis and treatment if necessary.

The Interviewer and Investigator

The interviewer-investigator is a highly trained specialist in the epidemiological approach and he is assigned to local health departments within high incidence areas of the state (see map). They are responsible to the physician in charge of the venereal disease division, Arkansas State Health Department and are thereby under direct medical supervision of a doctor licensed to practice in Arkansas.

Before employment these men must meet the qualifications of having a degree from an accredited college, of excellent moral standing, sound health, pleasing personality, and possess qualities of the ethics of confidence.

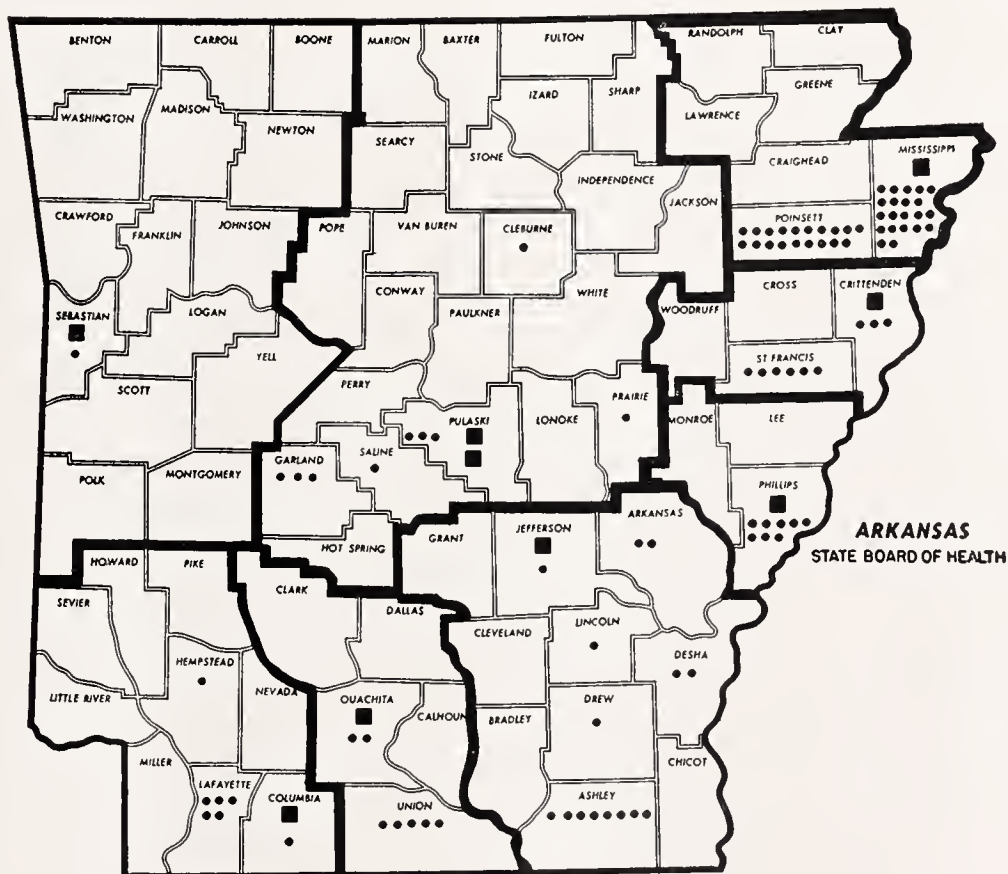
As soon as they begin work they are placed in a specialized school where they receive training in patient interviewing and case investigation. They are also schooled in the meaning of "Doctor-Patient" relationship and taught that this is an essential part of their work.

Each representative is equipped with a dark-field microscope which is available to the private physician upon request. He is skilled in the use of this microscope.

The investigator stands ready to assist the busy physician for if the trend of infectious syphilis is to turn down again, the greatest hope lies in a private physician health department partnership.

PRIMARY & SECONDARY SYPHILIS CASES REPORTED BY PRIVATE PHYSICIANS

July 1, 1961 - June 30, 1962



- Personnel Assignment
- Primary & Secondary Syphilis cases reported by Private Physicians



EDITORIAL

"CONFLICTS OF INTEREST"

By Alfred Kahn, Jr., M.D.

THE DRUG MANUFACTURERS HAVE NOT been shown by the Kefauver committee to have made unreasonable profits. The cost of drugs are materially reduced by advertising. If only two tetracycline tablets were sold per year, the tablets would cost in the 100,000's of dollars, or maybe even in the millions. Ethical advertising by stimulating trade reduces the cost of drugs so that any American can buy proper drugs. Among chemically complex drugs, the less sold, the higher the price. The drug manufacturers should be allowed to make a profit as long as there is no collusion on price fixing; it is the American way to try and earn a profit fairly; if the price is too high a competitor can effect its lowering through offering for sale a less expensive product.

One of the most discussed recent problems of the drug manufacturers is whether each drug company should be allowed to market the same drug under a different name. This current practice of many different company names for the same drug is not in the best interest of the public or the medical profession. No physician can remember all the different names given penicillin. This practice of multiple names confuses the physician and makes the number of drug names so multitudinous that worthwhile drugs "get lost" because the physician cannot remember the company name. Why not have a single name for each drug and let the drug be ordered by the company name plus the name of the drug; instead of zilchocillin, use Jones Penicillin. This gives the physician a clear opportunity to buy the brand of the ethical drug company of his choice, and still avoid the multiplicity of company names for

the same drug. One objection raised to this proposal is that a drug from company A is not equivalent to company B. This is not an impressive argument against this system of nomenclature as the Pure Food and Drug Laws can correct this if it occurs, and the other aspect is that the physician can still order from the firm of his choice on the prescription.

In another field, the profession has a problem involving a conflict of interest:—the insurance report. A patient, seeing his physician, wants a complete realistic appraisal of his problem. When the insurance companies write for a report, the same information supplied to the patient with an interpretation of the results is often a source of anxiety to the patient. This same information supplied to the insurer may result in an increase in the insurance premium or a refusal of insurance. Very frequently, the local insurance agent tells the patient the insurance was refused on the basis of your private physician's report. This practice is so wide spread that it appears it may force several changes in physicians relationships with insurers. Firstly, the physicians are more and more reluctant to supply insurers with adverse information about the patient. Secondly, some physicians may take the position that they will only make general statements about the patient's health and not supply diagnoses. Lastly, it may result in a double standard of report. The "double" report will be a factual report to the patient; the report to the insurance company will be a rather vague general statement.

Patients are not insured on the same basis now. Patient's whose physicians supply just a vague

general statement get more favorable insurance charges than patients whose physicians supply a detailed report.

Physicians are perfectly willing to supply insurance with ethical information but they are growing increasingly reluctant to supply this medical information where it boomerangs and injures

the physician-patient relationship. The insurers should make a special effort to keep reports supplied by physicians as confidential information to be kept as privileged material in the medical and underwriting departments—and not be released or divulged to agents or other personnel in contact with the patient.

MEDICINE IN THE



Medical Society Offers New Service

As an added service to the members, the Society headquarters will maintain a file of future medical meetings all over the United States and throughout the World. If any member plans a trip and would like to combine it with a scientific meeting, it is suggested that a letter be addressed to the Arkansas Medical Society, Post Office Box 1345, Fort Smith, giving the dates the trip is planned and the states or countries to be visited. You will be promptly advised by the headquarters if medical meetings are being scheduled which you could visit.

Dr. Nettles Speaks to Missco Doctors

Dr. John B. Nettles, Associate Professor of Gynecology and Obstetrics, University of Arkansas School of Medicine, in cooperation with the Professional Education program of the American Cancer Society, gave a talk to South Mississippi County doctors at a meeting recently in Osceola. He was introduced by Dr. L. D. Massey, member of the Board of Directors of the Arkansas Division of the American Cancer Society.

Community Pays Tribute to Dr. Wood

The Fountain Hill school lunch room was packed, December 4th, when some 150 friends of Dr. J. T. Wood and Mrs. Wood, gathered to pay tribute to Dr. Wood's fifty years of practice in Ashley County. He began his practice of medicine in 1912.

Dr. Wood graduated from the University of Arkansas Medical School in 1912. He practiced for a short while at the Pulaski County Hospital before going to Fountain Hill.

Hospital Officers Elected

Dr. W. E. Phipps, Jr., an alderman and active in the development of North Little Rock's Memorial Hospital, has been named chief of staff.

Dr. W. D. Sessoms was elected vice chief of staff and Dr. Frank B. Morgan was named secretary.

Dr. Phipps succeeds Dr. William L. Fulton, the first chief of staff, named in November 1961. He is a graduate of the University of Arkansas Medical School and began his practice in North Little Rock in 1938.

Sama-Sears Scholarship Program Announced

The Sears-Roebuck Foundation and Student American Medical Association Foundation will sponsor a preceptorship program to acquaint medical students with general practice work in small communities.

According to James T. Griffin, Foundation president, and Russell Staudacker, executive director of the Student AMA, ten preceptorships will be granted during 1963 to junior and senior medical students who spend two consecutive months with physicians in communities which have built clinics under the Sears-Foundation's Medical Assistance Program.

Each preceptor will receive a \$500 scholarship. In addition, the community where he works will provide the preceptor's room and board.

Interested students must submit applications, available through SAMA chapters, to the executive director of the SAMA in Chicago. Announcement of the winners will be made in March.

THE MONTH IN WASHINGTON

Washington, D. C.—Health, Education and Welfare Secretary Anthony J. Celebrezze expressed the belief that state and local governments have the primary responsibility for welfare programs and other public services.

He told a National Press Club luncheon:

"The federal government's responsibility should be limited to those matters which are of primary national interest and cannot be effectively carried on through individual or local community effort."

He also said that his basic welfare program policy would be to "help people help themselves."

But Celebrezze does not follow this philosophy

of government to the point of weakening his support of the Kennedy Administration's social security hospitalization legislation. The Administration has said that it will push again for passage of such legislation in the new Congress convening January 9. But Celebrezze conceded it would be difficult to secure House approval.

The Administration gave no indication in pre-session talk whether the big push for the legislation would be made in this year or in 1964.

The House of Delegates of the American Medical Association, at its recent 16th Clinical Meeting in Los Angeles, reaffirmed its opposition to the Social Security approach in providing health care for the aged. The AMA also reaffirmed its support of the Kerr-Mills program.

Dr. George M. Fister, AMA president, said the AMA "will not compromise on the fundamental principles" in the controversy. Noting that the medical profession again faces a hard fight on the issue in Congress, Dr. Fister expressed confidence that "we can again win."

A spokesman for the drug industry warned at a Washington, D. C. meeting of government and industry officials and consumers that enactment of the Administration medical care plan would open the way for the federal government "to extend its controls in all health areas, including drugs, ostensibly to assist patients economically to obtain these services." The spokesman, Francis C. Brown, president of Schering Corp., added:

"Those who say it can't happen here may be deluding themselves. It can and it will if we permit it."

The new Congress has only four physician members as compared to seven in the 1961-62 session.

Sen. Ernest Gruening (D., Alaska) and Reps. Durward Hall (R., Mo.) and Thomas Morgan (D., Pa.) were reelected. Dr. James D. Weaver (R., Pa.) captured a House seat in his first political race.

Reps. Walter Judd (R., Minn.) and Ivor Fenton (R., Pa.) were defeated in contests where redistricting was a major factor.

Rep. Dale Alford (D., Ark.) gave up his House and seat and ran unsuccessfully for governor of Arkansas. Rep. Edwin Durno (R., Ore.) lost in a bid to switch from the House to the Senate.

The overall election results added four Democrats in the Senate, but appointment of a Republican to succeed a deceased Democrat cut the net gain to three. The Republicans increased their House strength by two members.

The Senate lineup now is 67 Democrats to 33 Republicans. The new House has 259 Democrats and 176 Republicans.

The American Hospital Association and the Defense Department agreed on a program to use hospitals as public fallout shelters in event of nuclear attack.

In a joint statement, the AHA and the Defense Department said that "in these times every hospital has the responsibility to take practical and sensible measures to minimize loss of life resulting from radioactive fallout" should there be a nuclear attack.

It was estimated about 6,200 U. S. hospitals presently could provide fallout protection for more than three million persons.

The program calls for the Defense Department providing the co-operating hospitals with emergency supplies of medical material, food and other emergency items to be stockpiled in basements and other places judged "safe" from fallout.

If Congress approves the Administration's request for a national shelter program, federal funds will be available to hospitals for additional construction that would be suitable for operating rooms, storage space, automobile parking and other similar purposes when not needed for fallout shelters.

* * *

American consumers spent a new high of \$21.1 billion for health care in 1961, according to the Social Security Administration.

The Federal Agency reported that the total private outlay for health care, which included \$14.4 billion in direct out-of-pocket expenditures and \$6.7 billion paid for health insurance, exceeded by \$1.3 billion the total spent in 1960.

The 1961 consumer expenditure for health care amounted to \$116.60 for each American. Direct expenditures per capita were \$79.76 and payments for health insurance amounted to \$36.84 per capita.

These sums applied only to private expenditures for health care and did not include govern-

ment outlays or health care provided through private organizations to the needy.

A breakdown by category of expenditures showed how the consumer's health care dollar in 1961 was divided:—hospital care, 27.6 cents; physicians' services, 27.6 cents; drugs, 19 cents; dental care, 9.8 cents; eyeglasses and appliances, 6 cents; nursing and other professional care, 4 cents; nursing-home care, 1.4 cents. The remaining 4.6 cents represented the net cost of health insurance.

Of the total \$6.7 billion expenditure for health insurance premiums, 45.4 percent was paid to Blue Cross-Blue Shield plans, 38.1 percent to insurance companies for group coverage, 9.4 percent to insurance companies for individual policies, and 7.1 percent to independent health insurance plans.

It was estimated that insurance benefits paid 28.3 percent of the consumer's total 1961 health care bill, exclusive of the cost of insurance. Insurance met 66 percent of all charges for hospital care, 30 percent of all charges for physicians' services, and 1.5 percent of the cost of all other items, including dental care, nursing services, drugs, and nursing-home care.

Radiation Effects on the Spine Studied

Dr. Shirley Ann Gilmore, instructor in anatomy at the University Medical Center, discussed "Radiation effects on the Spine" before the Southwestern Section of the Society for Experimental Biology and Medicine.

Dr. Gilmore completed part of the research while on a postdoctoral research fellowship at the University of Uppsala, Sweden. She went there to utilize the synchrocyclotron at Gustav Werner Institute for Nuclear Chemistry and Institute for Anatomy. She joined the medical center staff in September, and will continue her research here.

Psychiatrist Speaks at Unitarian Church

Dr. John G. Howard, Jr., psychiatrist, lectured recently on "Depression and Grief" at the Unitarian Universalist Church in Little Rock.

Dr. Howard, now in private practice, is a voluntary clinical professor of psychiatry in the Arkansas Medical Center. He is past president of the Arkansas Psychiatric Association and the Pulaski County Mental Health Association. He was formerly clinical instructor in psychiatry in Vanderbilt University.

THINGS TO COME

Medical College of Georgia to Have Postgraduate Course

Physical, neurologic, intellectual, emotional, social, and cultural aspects of growth and development will be reviewed at the postgraduate course, **GROWTH AND DEVELOPMENT—MANAGEMENT OF COMMON BEHAVIOR DISTURBANCES**, February 12, 13, 14, 1963, to be held at the Medical College of Georgia, Department of Continuing Education, Augusta, Georgia.

Albert J. Solnit, M.D., Assistant Professor of Psychiatry and Pediatrics, Yale University School of Medicine; and Clinical Director, Connecticut Child Study and Treatment Home, New Haven, Connecticut will be the featured faculty.

Each course is acceptable for 18 hours credit by the American Academy of General Practice. Registration is limited to a small group for close faculty-participant communication. Registration fee is \$50.00. Application can be made by contacting Dr. Claude-Starr Wright, Director, Department of Continuing Education, Medical College of Georgia, Augusta, Georgia.

Plan Your Vacation a Year Ahead

Make your plans now to take your vacation next year and attend the greatest annual medical show on earth when the annual meeting of the American Medical Association will be held in Atlantic City June 16-20, 1963. This meeting is designed as a period of post-graduate study to bring the physician up-to-date on the progress of medical science during the past year. More Arkansas physicians should attend these annual meetings. This occasion can also be made a pleasant vacation period for the physician and his family.

This article is written for the purpose of making a survey to determine whether or not there will be enough interested physicians and wives to charter an American jet non-stop flight from Little Rock to Atlantic City. Eighty-five passengers are necessary to obtain the chartered flight.

The regular round-trip first class air fare is \$164.70, but the chartered round-trip fare will run \$115.00, which means a savings of almost \$50.00. This constitutes a bargain because the following extra chartered services will be available: (1) Publicity on departure; (2) photos furnished each member; (3) flight designated as "Convention Special-Arkansas Doctors"; (4) hot meals and beverage service; (5) advertising banner; (6) special souvenir menu; (7) baggage delivered to hotel; (8) ground transportation to hotel.

We are anxious to find out how many people might be interested in a jet flight arrangement and are requesting that the following coupon be filled and mailed to the address indicated.

Date.....

Dr. R. B. Robins
P. O. Box 118
Camden, Arkansas

I will be interested in the American jet flight to Atlantic City June 16-20, 1963. Comments on whether or not your wife and children will be in the delegation.

Signed

Address

University of Texas Postgraduate School of Medicine Offers Course on Infectious Diseases

The University of Texas Postgraduate School of Medicine is pleased to announce a course on "Infectious Diseases—1963—Recent Contributions of Lasting Value," scheduled for Thursday and Friday, February 28 and March 1, 1963. The course will be held in the Auditorium of the University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, Texas.

Guest speakers will include: Dr. Benjamin Kagan, Los Angeles, Dr. Samuel Katz, Boston, Dr. Jonas Salk, San Diego, Dr. Sidney Raffles, Palo Alto, California, Dr. Robert Tilley, Boston and Dr. Robert Ward, Los Angeles.

UCLA School of Medicine Offers International Program

The UCLA School of Medicine will offer three international Clinical Postgraduate Programs beginning this month, as follows: Mexico

City, February 20—March 2. Israel and Greece, March 16 — April 17. Japan and Hong Kong, April 12—May 4. All programs presented will be in cooperation with Medical Schools and hospitals in the areas visited and instruction is primarily by faculty members of the local Medical Schools, supplemented by faculty members of the UCLA School of Medicine.



O B I T U A R Y

Death Takes Little Rock Doctor

DR. THOMAS E. BURGESS, age 83, of Little Rock died in a local hospital. The youngest of 13 children, he was the son of Iverson and Dulcenia Burgess of Augsburg. He was a graduate of Arkansas College at Batesville, Ark., and the Baylor University Medical School at Dallas, Texas. He was in the Indian Territory a year and practiced at Lamar and in Perry County before going to Little Rock 30 years ago. He was a physician for the old Iron Mountain Railroad, now the Missouri Pacific Lines, 16 years.

He had been the physician at the Confederate Home at Sweet Home (Pulaski County) and was later chairman of the Board of the Home. He was assistant superintendent of the Pulaski County Hospital for several years, and was a member of the Pulaski Medical Society and the American Medical Association. He was a Methodist.

Dr. Browne Dies at Age 62; Headed Sanatorium 31 Years

DR. HUGH A. BROWNE, aged 62, who retired October 1 after 31 years as Superintendent of the McRae Tuberculosis Sanatorium for Negroes, died November 15th at his home in Kansas City, Kansas.

Dr. Brown, a youthful victim of tuberculosis himself, became known as one of the leading Negro specialists in the field during his tenure at the hospital. He graduated from Howard University College of Medicine in 1928, and came to Little Rock in 1931.

Dr. Browne lectured on the treatment of pulmonary tuberculosis before the Pulaski County Medical Society in 1950 and was the first Negro invited to speak to the Society. He was a lecturer on the disease for the National Tuberculosis Association.

Dr. William K. Riley Dies of Auto Injuries

DR. WILLIAM KIRK RILEY, 42, North Little Rock, died of injuries received in an automobile accident.

A former resident of Pine Bluff, Dr. Riley was a staff physician at the Veterans Hospital in North Little Rock. He was a member of St. Mary's Catholic Church.

RESOLUTIONS



RESOLUTION

WHEREAS, in order to express themselves on the recent loss of Dr. Thomas E. Burgess, the members of the Pulaski County Medical Society do pause with respect, and

WHEREAS, Dr. Burgess was for a number of years a member of our Society and his contribution to the health and well-being of many of the persons in this community will be long remembered and appreciated, and

WHEREAS, he was held in high esteem by his associates and his patients,

BE IT THEREFORE RESOLVED, that we express to his family and friends our deepest sympathy, and

That we shall forward a copy of this resolution to his family, and

That we shall incorporate this resolution in the minutes of the Society, and

That we shall cause the resolution to be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
Pulaski County Medical Society
Carl Wenger, M.D., Chairman

Read and approved
Dec. 4, 1962

RESOLUTION

WHEREAS, the recent untimely death of Dr. William Kirk Riley has been brought to the attention of the Members of the Pulaski County Medical Society with sincere sorrow, and:

WHEREAS, Dr. Riley was one of the newest members of the Society, but who in this short period of time was held in high esteem by those Members who were in contact with him,

BE IT THEREFORE RESOLVED, that the Pulaski County Medical Society express to his family its heartfelt sympathy at the untimely loss that they have sustained,

That a copy of this resolution be made a matter of record in the minutes of this meeting,

That a copy of this resolution be sent to his family, and

That we shall cause the resolution to be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
Pulaski County Medical Society
Carl Wenger, M.D., Chairman

Read and approved
Dec. 4, 1962

RESOLUTION

WHEREAS, an all-wise Providence has seen fit to remove from our midst, Dr. Charles P. Wickard who was a valued co-worker and a faithful member of the Pulaski County Medical Society; and

WHEREAS, as a physician in his chosen field, he attained a great measure of distinction in the community and with his colleagues as well as the gratitude and love of a host of friends and sorrowing people;

BE IT THEREFORE RESOLVED, that the Pulaski County Medical Society express to his family its heartfelt sympathy at the untimely loss that they have sustained,

That a copy of this resolution be made a matter of record in the minutes of this meeting,

That a copy of this resolution be sent to his family, and

That a copy of this resolution be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
Pulaski County Medical Society
Carl Wenger, M.D., Chairman

Read and approved
Dec. 4, 1962

RESOLUTION

WHEREAS, the passing from this life of Dr. Hugh A. Browne, a valued member of the Pulaski County Medical Society for many years, is noted with sincere reverence, and:

WHEREAS, Dr. Browne served with devotion the State of Arkansas in his capacity as Superintendent of the McRae Tuberculosis Sanatorium for thirty years, and:

WHEREAS, Dr. Browne had attained unequaled respect for his knowledge of tuberculosis among the experts in that field and among his colleagues:

BE IT THEREFORE RESOLVED, that the Pulaski County Medical Society express to his widow the sympathy of our group in her bereavement; that a copy of this resolution be made a matter of record in the minutes of this meeting; that a copy be sent to Mrs. Browne and a copy be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
Pulaski County Medical Society
Carl Wenger, M.D., Chairman

Read and approved
Dec. 4, 1962

ANSWER—Electrocardiogram of the Month

RATE: A: 340
V: 170

RHYTHM: Atrial tachycardia with 2:1 block
PR: —sec. QRS: .06 sec. QT: .26 sec.

INTERPRETATION: ABNORMAL. P waves abnormal in direction, rate 340/m, with ventricular rate 170/m. Paroxysmal atrial tachycardia with 2: 1 block except in lead V4.

COMMENT: This electrocardiogram was made during hospitalization of a patient with bronchogenic carcinoma. During hospitalization several attacks of arrhythmias occurred. The cause of the arrhythmia was considered to be metastasis since frequently cardiac metastasis occurs with bronchogenic carcinoma and supraventricular arrhythmias may be observed. The patient had several periods of arrhythmias during hospitalization with changing, abnormal atrial foci being noted on repeated tracings.

ANSWER—What Is Your Diagnosis?

There is a history of pain in the back and hips for nine months. Serum calcium 15.4 mgm%; phosphorus 3.9 mgm%; alkaline phosphatase 6.6 KAU; Bence-Jones protein negative.

DIAGNOSIS: Multiple myeloma. Diagnosis made by bone marrow biopsy.

X-RAY FEATURES: There is severe general osteoporosis of all the bones, particularly of the spine with thin stenciled outlines, "washed-out" trabecular pattern, and increased biconcavity of the vertebral bodies due to compression. There are wedge fractures of several of the lower thoracic and upper lumbar vertebrae. Typical numerous rounded somewhat varying-sized punched-out lytic lesions in the skull are present.



PERSONAL AND NEWS ITEMS

Rr. Redman Received Citation

Dr. Pierre Redman has been presented with a citation in recognition of his outstanding humanitarian services during his 25 years in Mena. The citation, in the form of a plaque, was presented at a coffee hour given in his honor at the Mena Cafe by the Veterans of Foreign Wars.

El Dorado Doctor Gets Legion Post

Dr. Garland D. Murphy Jr., of El Dorado has been appointed chairman of the American Legion's National Child Welfare Commission.

Fort Smith Doctor Gets Association Post

Dr. Davis W. Goldstein of Fort Smith has been elected vice chairman of the Southern Medical Association's Division of Dermatology and Syphilology.

Congressmen Feted by Doctors

A testimonial dinner for Arkansas's congressional delegation, sponsored primarily by the Arkansas Medical Society but in cooperation with 10 other groups, was held recently in Little Rock. Dr. King Wade, Jr. of Hot Springs, presided.

Dr. Nettles Speaks at Medical Meeting

Dr. John D. Nettles of the Department of Obstetrics and Gynecology, University of Arkansas Medical School, was guest speaker and special guest of honor at a dinner meeting of the Area Medical Society in November at the Town and Country Restaurant in Osceola.

Dr. Tom Johnston Appointed Councilor for Arkansas

At the meeting of the Southern Medical Association held in Miami Beach, Florida in November, Dr. Tom Johnston of Little Rock was appointed Councilor for the State of Arkansas to fill the vacancy created by the resignation of Dr. Euclid Smith.

Medical Education Foundation Requests Donations

Members of the Medical Society and their wives are asked to donate to the Medical Education Foundation for Arkansas. Checks should be made out to the Medical Education Foundation for Arkansas and mailed to P.O. Box 1345, Fort Smith Arkansas c/o Mr. Paul Schaefer.

Arkansas Medical Society House of Delegates Special Meeting Minutes

1:00 p.m., December 2nd, 1962

Hotel Marion, Little Rock, Arkansas

A special meeting of the House of Delegates of the Arkansas Medical Society was held in the Continental Room of the Hotel Marion in Little Rock on December 2nd, 1962, with Speaker of the House C. Lewis Hyatt presiding.

The invocation was given by Dr. H. W. Thomas.

Mr. Schaefer called the roll of official delegates. The following delegates and members seated as delegates by action of the House were present:

Representatives of component societies: ARKANSAS, R. H. Whitehead; BAXTER, John F. Guentlner; CHICOT, Major E. Smith; CRITTENDEN, Milton Lubin; DESHA, Guy U. Robinson; DREW, J. P. Price; GARLAND, Richard Graham, Joe Rosenzweig, Lon E. Reed; GREENE-CLAY, A. E. Andrews; HEMPSTEAD, James W. Branch; HOT SPRING, C. R. Ellis; INDEPENDENCE, O. J. T. Johnston; JEFFERSON, Ross Maynard; JOHNSON, James M. Kolb; LAFAYETTE, Robert Hunter; MILLER, Andrew Goesl; NEVADA, Charles A. Hesterly; OUACHITA, L. E. Drewrey; PULASKI, John McC. Smith, Robert Watson, George Mitchell, John Busby, Amail Chudy, James Morrison, Joseph Norton, Thomas Honeycutt, William Steele, John Wassell, W. Myers Smith, William S. Orr, Jerome S. Levy, Edgar Easley; SEBASTIAN, Carl Wilson, Murphey Henry, Roger

Bost; UNION, Kenneth Duzan; WASHINGTON, Moriss Henry, James Mashburn;

Councilors: Eldon Fairley, Hugh Edwards, Paul Gray, G. A. Sexton, T. E. Townsend, H. W. Thomas, George Burton, John L. Ruff, J. W. Kennedy, Martin Eisele, Bill D. Stewart, Ross Fowler, Stanley Applegate, L. A. Whittaker, C. C. Long;

State officers: President H. King Wade, Jr., President-elect Joe Verser, Speaker of the House C. Lewis Hyatt, Secretary H. Elvin Shuffield;

Past presidents: William A. Snodgrass, Jr., J. J. Monfort, Louis K. Hundley;

The chairman of the Credentials Committee, Dr. John Busby, reported that a quorum was present. There were 61 voting members in attendance.

Also present were Treasurer Ben N. Saltzman, Dr. Louise Henry, Dr. John Herron, Mr. Storm Whaley, Mr. Paul Harris, Mr. Eugene Warren, Mr. Schaefer, and Miss Richmond.

Speaker Hyatt called on the chairman of the Legislative Committee, Dr. Elvin Shuffield, to discuss the purpose of the meeting. After making brief comments, Dr. Shuffield requested that Mr. Warren explain bills proposed for the 1963 Arkansas Legislature.

Mr. Warren summarized the "Good Samaritan Legislation", which would exempt physicians and surgeons from liability for acts of omissions in giving gratuitous emergency care or assistance. Upon motion of Shuffield and Hundley, the House of Delegates voted unanimously to approve the proposed legislation.

Mr. Warren then discussed a bill which he had drafted to aid in the enforcement of the Food and Drug Act. The bill provides that all drugs sold in the State must be registered with the State Board of Health, that a registration fee of \$10 per drug up to a maximum of \$50 per company will be charged, that the retailer (druggist, grocer, etc.) is not responsible for violations of the distributor or manufacturer, and that by the sale of drugs in Arkansas a company automatically appoints the State Health Officer its agent for purposes of suit in case of injury to anyone in Arkansas. Easley moved that the House of Delegates approve the proposed bill. Thomas commented that if the House approved the proposed legislation, the doctors back at home must support the measure and urge their legislators to vote for it. The House voted unanimously to approve the proposed legislation.

Mr. Storm Whaley presented material on the proposed budget which the Medical Center will present to the Legislative Council of the Arkansas Legislature. The principal objective of the Medical Center is the full activation of the University Hospital to its capacity of 450 beds. Drewrey moved that the House of Delegates go on record as approving the proposed budget of the Medical Center. Motion carried unanimously.

Dr. Shuffield presented a proposal which the Washington County Medical Society wishes to have introduced in the 1963 legislature, a bill which would permit the Medical School to take up to 10% of the freshman class from out-of-state residents so long as a citizen of Arkansas would not be disqualified for admission. Ruff moved that the House of Delegates go on record as approving this legislation. Motion carried.

Dr. Shuffield reported that a Jonesboro physician had recommended that legislation be drafted for the 1963 legislature which would limit eligibility for the position of coroner to physicians. Verser moved that the proposal be tabled at this time. Motion carried.

President Wade discussed a proposed amendment to the Healing Arts Bill providing that medical doctors who are graduates of Class A medical schools be licensed to practice medicine in the State of Arkansas without regard to the basis science requirements if they are coming to Arkansas to be employed by a state institution. Mr. Warren stated that such a bill would be unconstitutional in that one licensing board could not waive the requirements of another. Verser remarked that such an exemption would weaken the Medical Practices Act. Stewart moved that the House of Delegates not approve the proposal. Upon second by Eldon Fairley, the motion carried unanimously.

President Wade reported on a meeting with Congressman Wilbur Mills concerning implementation of the Kerr-Mills Law in Arkansas. The Welfare Liaison Committee is considering the possibility of requesting that the legislature make some changes in eligibility requirements and requesting an increase in the appropriation for the program in the State. Whittaker moved that the House of Delegates go on record as approving a request for an increase in the appro-

priation for the Kerr-Mills Program. Motion carried.

Dr. Thomas commended the physicians present for giving up a Sunday afternoon to help with the problems of the profession. Dr. Thomas called the attention of the House to the continuing good work of the Society headquarters. He advised the House that in the past week Miss Leah Richmond, the administrative assistant in the Society headquarters, had completed ten years of service to the profession. He congratulated her. Thereupon the House gave Miss Richmond a standing ovation in recognition of the high standard of her work and her loyalty to the Society.

Dr. John Herron, State Health Officer, discussed the State Board of Health's proposed budget for the 1963-65 biennium. Hundley moved that the House of Delegates approve and assist the State Board of Health in any way in getting their increased budget. Second by Thomas. Motion carried unanimously.

Dr. Roger Bost, chairman of the Polio Advisory

Committee, reported for his committee and recommended that plans be resumed for a Sabin Oral Polio Vaccine Mass Immunization Program. Wittaker moved that the House of Delegates approve the work of the committee and that a date be set for beginning the immunization program simultaneously over the State, and that the Polio Advisory Committee be given full authority to develop the immunization program as it believed best in the light of circumstances as they develop. Motion carried unanimously.

George Burton spoke briefly urging active participation of all physicians on local levels in ArkPAC.

James M. Kolb, delegate to AMA, gave a brief report of some of the important actions of the House of Delegates of AMA at its Clinical Meeting in Los Angeles in November.

Upon motion of Fowler, the House adjourned.

Approved: C. Lewis Hyatt, M.D., Speaker, House of Delegates.



PROCEEDINGS OF SOCIETIES

AMA's Sixteenth Clinical Meeting Held in Los Angeles

Health care for the aged, medical ethics, graduate medical education, expansion of the AMA Board of Trustees and a study of the sections and scientific program of the AMA were among the major subjects acted upon by the House of Delegates at the American Medical Association's Sixteenth Clinical Meeting held in November in Los Angeles. The keynote address was made by

Dr. George M. Fister of Ogden, Utah, AMA president.

New Officers Elected in Ouachita County Medical Society

The Ouachita County Medical Society, elected the following officers at their regular monthly dinner session in December: President, Dr. P. J. Dalton, Camden. Vice President, Dr. B. D. King, Camden. Secretary, Dr. R. B. Robins (36th year), Camden. Delegate, Dr. Henry Hearnberger, Stephens. Alternate, Dr. Tom J. Meek, Camden.



NEW MEMBERS

DR. THOMAS PAUL THOMPSON, JR. is a new member of Miller County Medical Society. A native of Texarkana, Arkansas, he received a BA degree from Hendrix College in Conway, Arkansas. In 1956 he was graduated from the University of Arkansas School of Medicine with a M.D. degree. Dr. Thompson practiced at Webb Air Force Base, Texas from 1957 until 1959; he was in residency training in obstetrics and gynecology at the University of Arkansas Medical Center from 1959 until 1962. His office is now located at 401 East Fifth Street in Texarkana.



BOOK REVIEWS

IMMUNOASSAY OF HORMONES, Ciba Foundation Colloquia on Endocrinology, Volume XIV, edited by G.E.W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P. and Margaret P. Cameron, M.A., pp. 119, illustrated, published by Little, Brown and Company, Boston, 1962.

This text is of a highly technical nature and is of interest to research endocrinologists only. AK

PULMONARY STRUCTURE AND FUNCTION, Ciba Foundation Symposium, edited by A. V. S. de Reuck,

M.Sc., D.I.C., A.R.C.S. and Mervin O'Connor, B.A., pp. 403, illustrated, published by Little, Brown and Company, Boston, 1962.

This symposium is an excellent review of recent studies on the lung. As the title implies, the anatomy and innervation of the lung is discussed. Gas flow and absorption are reviewed. There is an excellent chapter on emphysema. The book, in general, is very well written. It is easy to understand and is certainly valuable to any practicing physician who is interested in pulmonary diseases. AK

SURGICAL PRACTICE OF THE LAHEY CLINIC, by Members of the Staff of the Lahey Clinic, Boston, pp. 872, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1962.

This book is the third edition and is considered a standard text of surgery. The book is well written and is considered by all to be authoritative and accurate. It has a moderate number of illustrations and a fairly good bibliography at the end of the chapters. There are a moderate number of charts. The text covers most fields of surgery. However, there are some fields that are not covered. Cardiac surgery, for example, is not covered. The use of pump-oxygenators is covered in the text and, inasmuch as cardiac surgery is deleted, the reviewer wonders why this chapter is included. The information is valid and skillfully presented. This book is recommended as a supplementary text to surgery to medical students, interns and practicing physicians. AK

CLINICAL DIAGNOSIS BY LABORATORY METHODS, Thirteenth Edition, Edited by Israel Davidsohn, M.D., F.A.C.P., Chairman, Department of Pathology, The Chicago Medical School; Director, Department of Pathology, Mount Sinai Hospital; and Scientific Director, Mount Sinai Medical Research Foundation, Chicago, and Benjamin B. Wells, M.D., Ph.D., F.A.C.P., Dean, California College of Medicine, Los Angeles; formerly Assistant Chief Medical Director for Research and Education in Medicine, The Veterans Administration, Washington, D.C., pp. 1020, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1962.

This text has been significantly improved in its various revisions. It is enlarged. The index seems more complete. The illustrations are good and, in the case of blood, are in color. The text is organized along conventional lines and various authors discuss urine, blood, blood groups, hemorrhagic disorders, isotopes, chemical methods, bacteriology, etc. The tests of hepatic function are complete and accurate. There is an excellent bibliography. The serum enzyme determinations as a means of diagnosis is an interesting although short chapter. This book is heartily recommended to all practicing physicians, interns and medical students. AK

TUBERCULOSIS



ABSTRACTS

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RESPIRATORY ABNORMALITIES IN EOSINOPHILIC GRANULOMA OF THE LUNG

Five cases of this lung condition, which is rare but on the increase, were followed by physiologic studies for from two to nine years. Mechanics of breathing were normal in most of the subjects, but there was severe impairment of diffusing capacity and marked ventilation-perfusion discrepancies. Diagnosis can be made with certainty only by lung biopsy.

Interstitial and perivascular granulomas, surrounded by eosinophiles and histiocytes, scattered at random throughout the lung parenchyma, constitute the pathologic pattern of pulmonary eosinophilic granuloma. The expected physiologic derangements would be alterations in intrapulmonary distribution of gas and blood, impairment of gas diffusion across the alveolo-capillary membrane, and alterations in the mechanical properties of the lungs.

The present report is based on study of five cases of eosinophilic granuloma confined to the lungs in which extensive clinical and physiologic measurements were made at intervals up to nine years.

FUNCTION TESTS

Spirograms were recorded and from these the fast vital capacity (VC) and its subdivisions and the maximum midexpiratory flow (MMEF) were obtained. The maximum breathing capacity (MBC) was measured also.

Pulmonary compliance was calculated from simultaneous records of volume and intraesophageal pressure.

All blood and gas collections were made during steady-state conditions, with the subject supine after resting for at least 20 minutes, and during exercise on a treadmill. Diffusing capacity

was measured by O_2 and CO methods, both by single breath and during steady breathing.

Observations were made at intervals of four weeks to eight and five-tenths years.

CHARACTERISTIC LESIONS

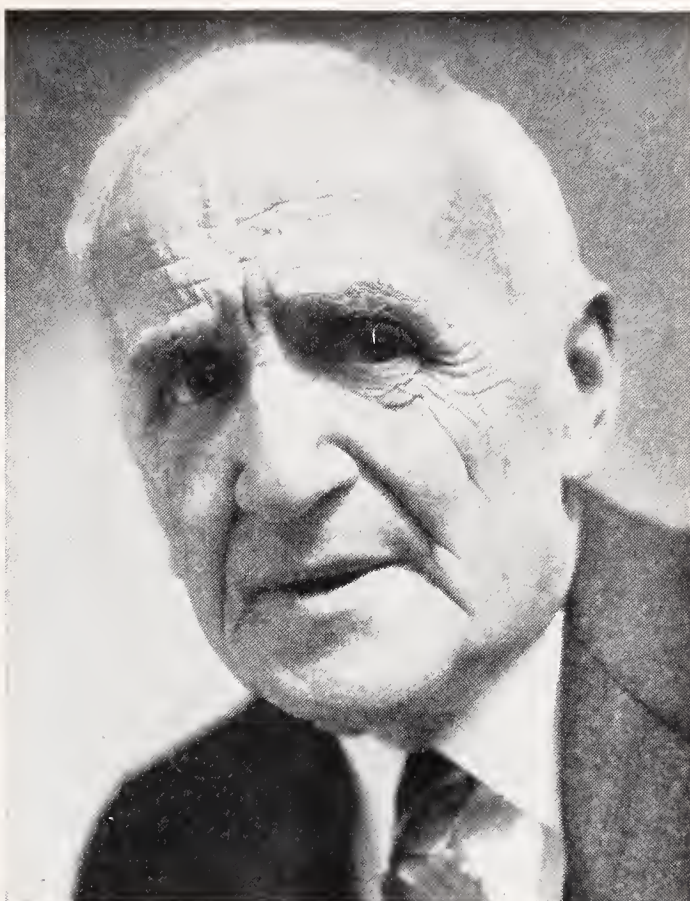
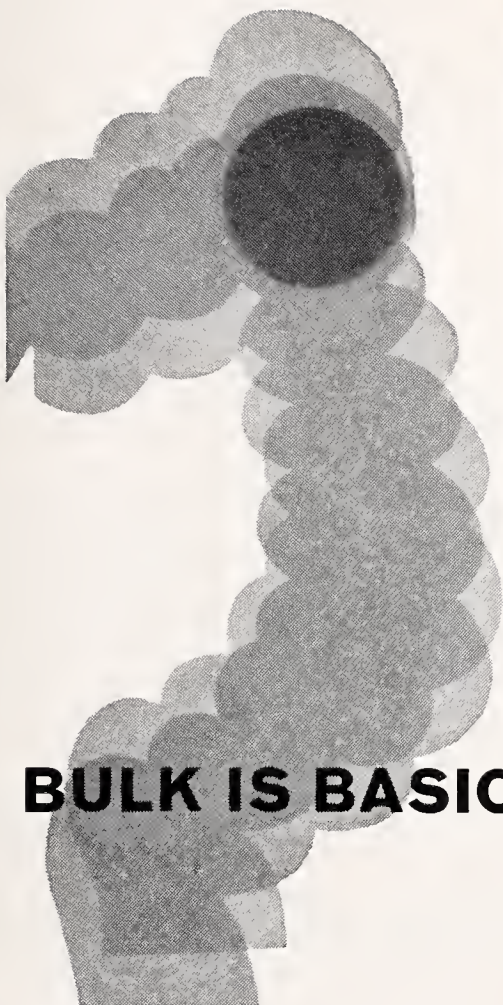
Lesions found in all five cases were characteristic. Small, gray-white, firm nodules were scattered throughout the parenchyma of the lungs. Histologic patterns varied considerably, depending upon the stage of the disease. Most of the granulomas occurred in interstitial tissue. Arteriolitis was common and focal involvement of small airways was also noted. In one case "bronchiolitis" was more prominent than in the other cases. In some specimens areas of fibrosis were interspersed with active granulomas, and focal emphysema surrounded these areas.

One case provided an opportunity to study two stages of eosinophilic granuloma of the lung. In 1955 nodular parenchymal lesions and many subpleural blebs were found by lung biopsy. The microscopical anatomy was typical of eosinophilic granuloma although fibrous tissue was prominent.

Two years later the pattern found at autopsy was vastly different. The lung was stiff and non-collapsing. Whole-lung sections demonstrated an irregular pattern of air spaces varying in size up to 1 cm. in diameter, interspersed with blood vessels of many sizes. Thick bands of mature fibrous tissue separated dilated air spaces and vascular channels. The cystic spaces, lined with respiratory epithelial cells of fibrous tissue, may have represented dilated bronchioles, coalesced alveolar spaces or newly formed sacs. No unequivocal evidence of eosinophilic granuloma was found at this stage. The hilar lymph nodes were normal. No lesions were found in the hypothalamic-hypophyseal system.

Without the previous biopsy a specific cause for the widespread alteration of lung architecture could not have been ascertained, and this is the

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stage of disease called "honeycomb lung" by J. Gough and others. The suspicion of eosinophilic granuloma arises then only if the patient also had diabetes insipidus.

PATHOPHYSIOLOGY

The physiologic observations can be considered in terms of the pathologic findings. The earliest documented phase of pulmonary eosinophilic granuloma is characterized by a diffuse infiltrative process encroaching upon air spaces and small blood vessels. This leads to decrease in lung compliance and diminished lung volumes. As the process clears the lung compartments enlarge. Normal mechanics of breathing was a characteristic finding in nearly all subjects in serial studies.

Only one case had some decrease in expiratory flow rates initially. In the final stage of the disease the terminal airways were markedly distorted. However, the supporting structures of these conduits were not lost as they are in emphysema. Thus, airway resistance remains low and ventilatory capacity high.

Impaired alveolocapillary diffusion in eosinophilic granuloma may result from two distinct but often associated processes. During the active phase of the disease interstitial lesions may thicken the membrane and increase the barrier to gas exchange. Damage to pulmonary arterioles may decrease the number of effective, perfused capillaries and thereby reduce the surface area of effective alveolocapillary membrane available for gaseous diffusion.

INCIDENCE

The incidence of eosinophilic granuloma is unknown. Cases have been reported with increasing frequency in recent years. This may be the result of more common use of lung biopsy in the diagnosis of diffuse lesions of the lung. There are no pathognomonic clinical, radiographic, or physiologic features. The disease usually occurs in white men between 20 and 40 years of age. Although the course is usually benign and self-limited, pulmonary insufficiency of varying degrees may ensue. Non-specific pulmonary fibrosis may be a consequence of eosinophilic granuloma.

Histological examination of lung tissue is essential for diagnosis. Scalene adenectomy has proved useless in cases reported. An assumed association between proved eosinophilic granuloma of bone and a pulmonary infiltrate seen on X-ray study, although reasonable, can be misleading. About 28 per cent of all cases have had one or more episodes of spontaneous pneumothorax, and diabetes insipidus has been reported in 21 per cent of cases but was not found in this series.

One patient treated with large doses of adrenocorticosteroid drugs showed marked improvement in all modalities of function and rapid clearing of the roentgenogram of the chest. In 3 other patients X-ray clearing was less well related to functional changes, and clinical improvement occurred during periods without treatment. Radiation therapy in 1 case caused no improvement.

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Relation of Altered Thyroid Activity and Erythrocyte Survival as Determined by the Radiochromium Technic[†]

L. H. Aulsebrook, M.A.*
Horace N. Marvin, Ph.D.**

*‡Paper presented at the University of Arkansas
School of Medicine in November
at the meeting of the Southwest Section of the Society
for Experimental Biology and Medicine.*

Introduction

ANEMIA¹ IN HYPOTHYROIDISM and polycythemia² in hyperthyroidism are well known clinical findings in these two human diseases. Examination of bone marrow samples from these two types of individuals supports the contention that hypoplasia and hyperplasia, respectively, are responsible in part for the peripheral blood picture. In addition, however, it has been reported by some⁴ that the erythrocytes of hypothyroid patients have a prolonged survival time, and by others² that the life span is decreased. Hyperthyroidism, conversely, has been reported³ to decrease the survival time. In experimental animals, thyroxine administration was found to be without effect in rats⁵, yet others reported moderate shortening of survival of rabbit erythrocytes⁶.

Considerable effort has been directed in recent years toward investigating the metabolism of the erythrocyte, stimulated in part by interest in blood preservation and storage. As a result of these studies, a partial catalogue of the biochemical constituents, including enzymes, has been made^{7, 8, 9}. Changes in the levels of some of these

enzymes related to intravascular aging of erythrocytes has been reported^{10, 11}. Since protracted treatment of humans¹² and animals^{13, 14, 15} with thyroid substances has been shown to decrease erythrocytic enzyme activity, it seemed reasonable that survival would be shortened.

The results of experiments to test this relationship are herein reported.

Procedure

Young, male rats of the Holtzman strain were divided into groups for experimental study. *One* group (7 rats) was surgically thyroidectomized and the erythrocytes tagged 80 days postoperatively, and a *second* group (6 rats) was similarly thyroidectomized but tagged 226 days after thyroid removal. A *third* group (8 rats) was chemically thyroidectomized by receiving a saturated (ca 0.1%) aqueous solution of propylthiouracil in place of drinking water for 80 days before tagging, and thereafter until time of sacrifice. Animals of a *fourth* group (7 rats; T₄-I) were given 5 µg of 1-Na thyroxinate/100 gm body weight daily beginning 6 days prior to tagging, and this dose was increased gradually to 100 µg/day at the time of sacrifice. In a *fifth* group (8 rats; T₄-II) each rat received 25 µg/day for 5 weeks and 50 µg/day for 10 weeks prior to tagging. Thus the tagged cells had all been produced under the influence of the hormone. Subsequent to tagging, the dosage was

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**Professor and Head Dept. of Anatomy.

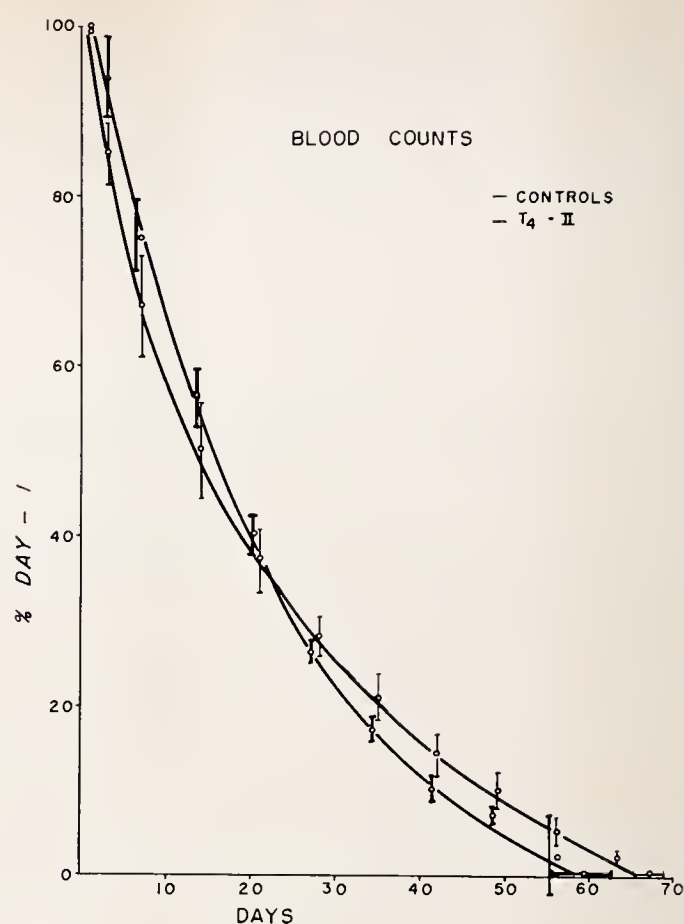
increased incrementally to 100 $\mu\text{g}/\text{day}$. This dose proved to be maximal, resulting in the loss of 4 animals during the experiment. Establishment of both the hypo- and hyperthyroid states was verified by demonstration of depressed and elevated oxygen consumption, respectively, as compared with controls (8 rats) comprising the *sixth* group.

All animals were tagged at the time specified above according to the principles set forth by Gray and Sterling¹⁶ and Ebaugh, *et al*¹⁷ as modified for small animals by Marvin and Lucy¹⁸. The one modification was the use of physiological saline in place of ACD solution.

Blood counts of isotopic activity as a measure of erythrocyte survival were made in a scintillation-well counter 24 hours post-tagging (the time for clearance of reduced chromium from the plasma), on day 3, and every seven days thereafter until autopsy at 70 days. Whole body counts were made on the day of tagging and on the same days as blood counts for an indication of the activity of the reticulo-endothelial system. The time of autopsy was chosen as the maximal time required for clearance of Cr-51 from the bloods of all animals. At autopsy bone marrow, spleen, liver, kidney and thymus were removed, weighed, and counted in the scintillation-well counter.

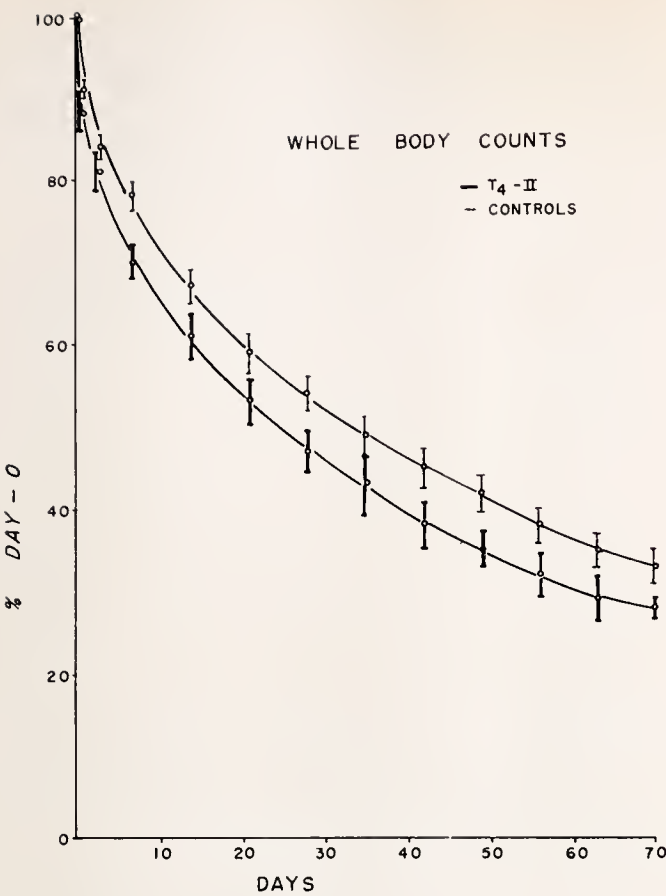
Results and Discussion

The curves obtained by plotting the results from counting blood samples are shown in figure one. Only the T_4 -II group is compared to controls because neither the surgically nor the chemically thyroidectomized animals differed from the controls, nor were whole body counts for any hypothyroid animals different from controls. The mean survival times for group T_4 -II is 59 ± 3.4 days and 67 ± 1.5 days for controls, a statistically significant difference. The rate of erythrocytic loss appears to be slower for the thyroxine-treated group for the first 25 days, and then more rapid as compared with controls. This apparent contradiction may be the result of a relatively large population of tagged young cells with a shortened potential life span in individuals of the treated group. This explanation is supported by the finding of a generally accepted polycythemia in the hyperthyroid rats. If mean survival times had been obtained from the intercepts of extrapolated tangents to the initial parts of the curves, or if the time at which a 50% loss of tagged cells had occurred, methods commonly used by other investi-



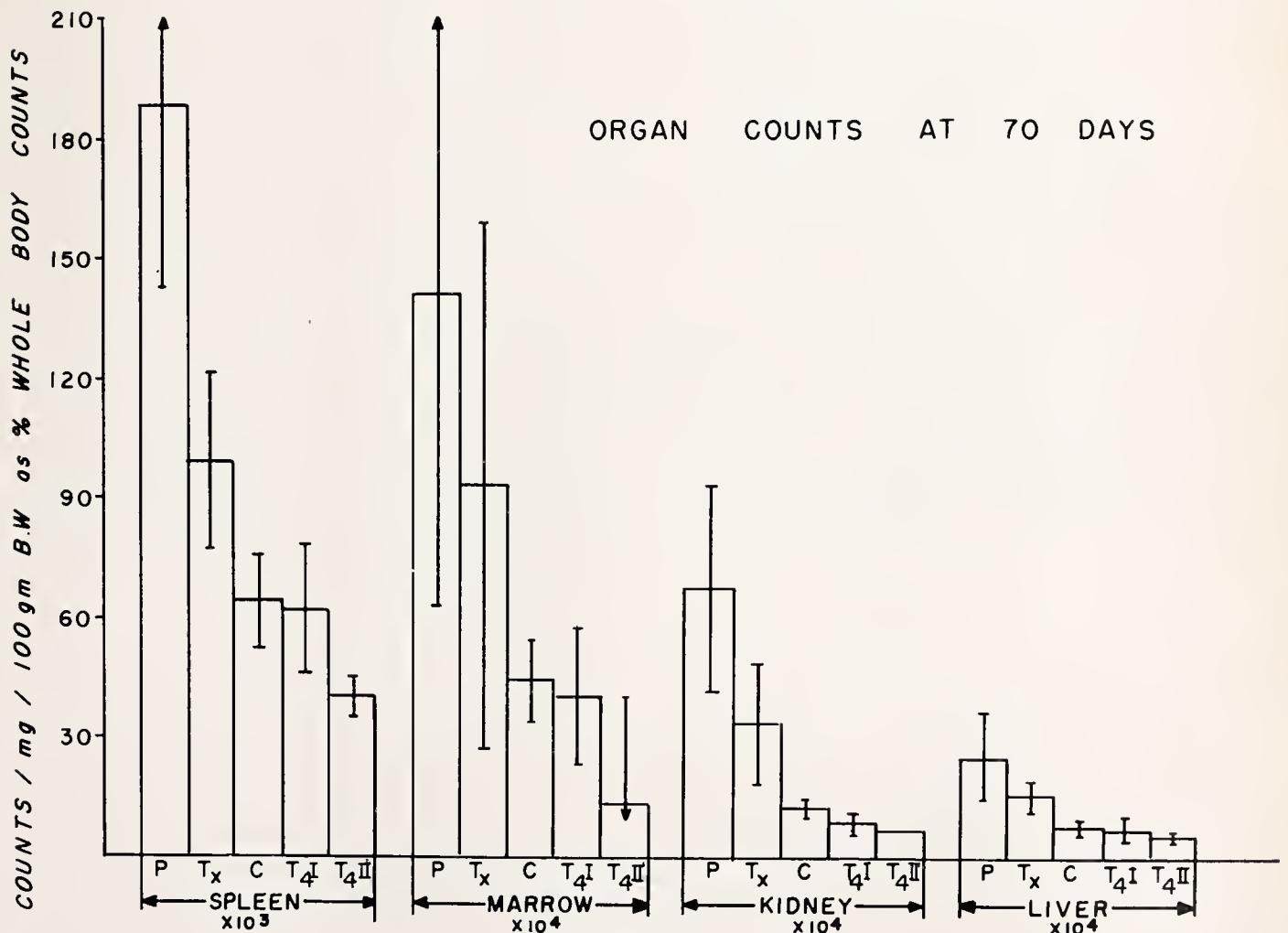
gators, the total effect of hyperthyroidism would not have been observed. The contradictory reports of the effects on survival of erythrocytes in both hypo- and hyper-thyroid states, can be explained on the basis of the methods used by other authors in calculating the life spans.

The application of whole body counting techniques to studies on erythrocyte survival is a recent innovation. The results of such a study are presented graphically in figure two. It can be seen that by the third day the T_4 -II animals were losing chromium at a faster rate than the controls. It is generally accepted that the reticulo-endothelial (RE) system is important in the handling of senile erythrocytes. From the whole body counts alone one cannot determine the role of individual organs of the RE system. Therefore the residual chromium contents of four RE organs and the kidneys were determined, and the results are presented in figure three. The values for thymus were not included among the histograms because the actual counts were essentially zero. Since the blood levels of isotope were zero at the time of sacrifice only isotope accumulated by these organs is measured. Although an exact quantitation of the RE component cannot be made, it is clearly evident histologically that the spleen and bone marrow are the most heavily endowed of the or-



gans studied. Consistent with this the greatest unit content of chromium is found in these same organs. In addition there is a consistent relationship between treatment and chromium content of each organ, despite the fact that differences between groups frequently are not statistically significant. Results reported by other investigators have been obtained from animals rendered hypothyroid by chemical means. It is conceivable and has been reported¹⁹ that antithyroid drugs exert direct extrathyroidal effects. The data reported here demonstrate a quantitative difference in the handling of sequestered erythrocytes by propylthiouracil-treated rats compared with those surgically thyroidectomized. The differences in chromium content related inversely to metabolic status can be explained in two ways; namely, an altered uptake of labeled erythrocytes, or a change in rate of turnover and release of chromium-tagged residua. At the present time the latter seems more probable.

If hypermetabolism induced by thyroxine reduces the survival time of erythrocytes, as is concluded here, then the mechanism whereby this shortening is brought about remains to be eluci-



dated. The premature senility may well be the result of a precocious depletion of the endogenous enzymes of red blood cells.

Summary

1. Thyroxine-induced hypermetabolism shortens the maximal survival time of the rat erythrocyte, and increases the rate of chromium loss from the body.
2. Surgical and chemical thyroidectomy are without effect on either of these phenomena.
3. The spleens, bone marrow, kidneys and livers of control animals contained more chromium residues than those of hyperthyroid animals, and less than those of hypothyroid animals.

FIGURE LEGENDS

- Figure 1. Survival curves of erythrocytes of control and thyroxine-treated rats (T_4 -II). The vertical bars represent plus and minus one standard deviation. The values are significantly different after day thirty.
- Figure 2. Curves representing the biological decay of total body chromium in control and thyroxine-treated rats (T_4 -II). The vertical bars represent plus and minus one standard deviation.
- Figure 3. Histograms of counts/mg. of organ/100 gm. body weight. The values are expressed as percentage of whole body counts at the time of autopsy, to normalize for variations in initial activity of tagging chromate. Note that the values for marrow, kidney and liver are expressed $\times 10^4$, but those of the spleen are expressed $\times 10^3$. Therefore, the bars for the spleen are actually ten times the height shown. P=propylthiouracil treated, Tx=both groups of surgically thyroidectomized. C=controls, T_4 -I=mildly hyperthyroid and T_4 -II=severely hyperthyroid.

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A Study of Neurological and Morphological Changes Following X-Irradiation of Spinal Cords of Neonatal Rats*

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ALTHOUGH MANY INVESTIGATIONS have attempted to elucidate the effects of ionizing radiations on the nervous system, few of these have been concerned with the neonatal nervous system and its response to ionizing radiations. The first experiment of this series was designed to evaluate neurological alterations induced by x-irradiation of spinal cords of neonatal albino rats of the Sprague-Dawley (Holtzman) strain.

Rats, one to 21 days of age, received 4430r (single dose) of 50 KVP x-rays to a 50 mm² area of the back overlying the caudal portion of the spinal cord. These animals were observed for several months with neurological examinations being given first at daily and later at weekly intervals. The principal alteration noted in those irradiated when 1 to 5 days of age was bilateral paralysis of the hindlimbs. Those irradiated at 10 or 15 days showed markedly less severe alterations; those irradiated at 21 days manifested no neurological changes. It was noted also that not only the severity of neurological change decreased with

increased age at time of irradiation but also the number showing neurological changes decreased with increasing age. Conversely, the time between irradiation and the onset of neurological changes increased with increasing age.

Since it was found in the first experiment that animals irradiated at 1 to 5 days of age showed neurological changes at 9-11 days post-irradiation an experiment was designed to study morphological changes occurring during this 9-11 day period. For this experiment three day old rats were irradiated, as described above, and killed at intervals up to 11 days post-irradiation. The spinal cords were fixed and interrupted serial sections were prepared for study; cresyl violet, hematoxylin and eosin, and myelin stains were used. Microscopic examination revealed a marked decrease in neuroglial cells within and limited to the irradiated area; consequently, myelin stains showed an amyelination or hypomyelination confined to the irradiated area. On the other hand, no extensive alterations were noted in neurons. As yet, the relationship between the morphological and the neurological changes has not been fully determined.

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SOME STUDIES ON THE ROLE OF MUCOPOLYSACCHARIDES IN OSSIFICATION¹

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THE POSSIBLE BIOLOGICAL significance of the mucopolysaccharide (MPS), chondroitin sulfate, in the mechanism of calcification and ossification was proposed by Sylvén ('47a, '47b). He also suggested that chondrocytes elaborated this MPS, and that it disappeared from these cells just preceding calcification. Their synthesis by chondrocytes was verified by Dziewiatkowski ('51) when he reported the isolation of chondroitin sulfate from cartilage. *In vitro* studies have indicated that chondroitin sulfate interacted with collagen to produce an environment suitable for calcification (Sobel *et al.*, '54).

Chemically mucopolysaccharides are made of repeating disaccharide units united by oxygen, each unit being comprised of uronic acid and amino sugar compounds. Three chondroitin sulfate compounds have been isolated: A and C which are normal constituents of bone and cartilage, and B which is normally found in skin, aorta and tendons (Meyer *et al.*, '59). In addition, keratosulfate, which is normally present only in the cornea and nucleus pulposus, and heparin sulfate, which is found in the aorta, have been isolated (Meyer *et al.*, '59).

The role of the endocrines in the metabolism of MPS has been reviewed (Dorfman and Schiller, '58; Asboe-Hansen, '59, '61). In specific reference to cartilage and bone, corticoids (Clark and Umbreit, '54), thyroidectomy (Dziewiatkowski, '57), hypophysectomy (Daughaday *et al.*, '59; Ellis, *et al.*, '53) vitamin D deficiency (Sahashi *et al.*, '62) and the enzyme papain (Bryant *et al.*, '58) either inhibit the synthesis or accelerate the release of MPS. On the other hand, somatotrophic hormone

(Ellis *et al.*, '53), and prolactin (Denko, '59) increase the incorporation of sulfur-35 into the MPS compound. As for the sex steroids, androgens appear to enhance synthesis of collagen, but do not seem to influence MPS degradation or synthesis (Asboe-Hansen, '59, '61; Priest *et al.*, '60). Estrogens have been reported to decrease sulfur-35 uptake in cartilage (Priest *et al.*, '60), while increasing incorporation of sulfur-35 in the walls of the female genitalia (Asboe-Hansen, '61). This disparity may be reconciled on the basis of possible differential response upon different target organs. It is more likely, however, that the differences could be explained on a dose-response basis. For example, large doses of estrogen will cause sclerosis of cartilage and inhibition of growth (Gardner and Pfeiffer, '43; Suzuki, '58), whereas small doses do not induce sclerosis and do accelerate growth (Suzuki, '58). The large amounts of estrogen given by Priest *et al.* ('60) may have caused sclerosis of the cartilage, and thereby reduced the sulfur-35 incorporation into the cartilage. A study is needed in which small amounts of estrogen are given to experimental animals in order to determine whether or not estrogen accelerates or inhibits incorporation of sulfur-35 into MPS of cartilage.

Our interest in this general area of investigation was stimulated by the possibility that mucopolysaccharides and estrogen might interact in their effects upon ossification. In certain birds, a physiological phenomenon known as *endosteal ossification*, in which the marrow cavities of long bones become filled with spicules of bone, has been correlated with the high levels of estrogen during the egg laying period (Bloom *et al.*, '41, '42). With injections of estrogen, this phenome-

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non may be stimulated in the mouse, an animal in which endosteal ossification does not normally occur (Gardner and Pfeiffer, '43).

A question arose as to the possibility of bone formation taking place in autogenously transplanted mouse whole bones. An experiment was performed in which it was demonstrated that estrogen can stimulate significant amounts of bone formation under these conditions (Suzuki, '59). Since the bones were implanted ectopically in the abdominal subcutaneous region for three weeks, it was not surprising to note that most of the epiphyseal cartilage cells were necrotic. Viability of the implant was dependent upon the development of a blood supply, and simple exchange of nutrients and wastes between host and implant was not sufficient to support the life of the implant.

Several questions arose from this preliminary experiment. From where do the vascular beds originate, specifically, do they develop by invasion from the host, or are the original vessels of the bone reutilized after implantation? Since the epiphyseal cartilage is necrotic at the termination of the experiment, could some material released from the cartilage cells during this necrosis have played an osteogenetic role in those implants of estrogen-treated mice?

The sequential development of vascularization within the implant was studied in hosts injected with India ink-gelatin mixture (Suzuki and Jee, unpublished data). Preliminary results indicate that host blood vessels begin to invade the ectopically placed bones as early as 3 days after implantation; by the twelfth day, the bones are well vascularized. The vessels appear to be newly developed within the bone, since they do not follow the normal pattern found in non-transplanted bones, but are randomly arranged throughout the metaphysis.

In order to determine the role played by the epiphyseal plate during osteogenesis in the transplants, the epiphysis was removed from the amputated tibia, and replaced by Gelfoam soaked in chondroitin sulfate extract. Each group was subdivided into estrogen-treated subgroups and controls, and sacrificed three weeks later. Significant amounts of bone formation were found only in those implants in which the hosts were concomitantly treated with estrogen (Suzuki, '62). Thus, it appeared that chondroitin sulfate could substitute for the epiphyseal cartilage cells in presenting

an environment which acted in concert with estrogen to induce hyperossification within the ectopically placed bones. Unfortunately, a crude bovine tracheal extract of chondroitin sulfate containing chondroitin sulfate A and C was used in the aforementioned experiment; it was later analyzed and found to contain 40% impurities, probably protein.

The following purified MPS became available and the experiment was repeated: chondroitin sulfate A, B, and C, heparin sulfate and keratosulfate. In addition, the non-sulfated MPS, hyaluronic acid and heparin were used. Only those animals receiving estrogen and gelfoam soaked in chondroitin sulfate A, B and keratosulfate had significant amounts of endosteal ossification. Two of the sulfated MPS, chondroitin sulfate C and heparin sulfate did not induce bone formation, nor did the non-sulfated MPS, heparin and hyaluronic acid.

Since chondroitin sulfate A is normally found in cartilage, it was not surprising to find that it aided in the induction of bone formation *in vivo*. However, I did not expect to obtain negative results with the other normal MPS constituent of cartilage, chondroitin sulfate C. It is present in large quantities in the cartilage of lower vertebrates, such as elasmobranchs, and in the cartilage of mature humans (Meyer *et al.*, '58, '59). Structurally, chondroitin sulfate A and C differ in the position of the sulfate ester. In the former it is located on the 4th position on the amino sugar, whereas it is located on the 6th position in the latter. The difference in the position of the sulfate ester may alter the function of the two MPS.

Chondroitin sulfate B and heparin sulfate have been found in large quantities in the urine of patients having Hurler's syndrome (Meyer and Hoffman, '61). The former was present in the bone and cartilages, but there was some question as to the presence of the latter in those tissues. Briefly this disease is characterized, in part, by irregularities in endochondral ossification. It is possible that the high rate of synthesis of chondroitin sulfate B may influence the osteogenetic processes. Thus, experimental evidence is presented to corroborate clinical observations that chondroitin sulfate B can aid osteogenic processes under abnormal conditions. On the other hand, heparin sulfate did not appear to influence osteogenesis in the implants, and likewise may not affect bone formation in Hurler's syndrome.

Keratosulfate has been isolated from the costal cartilages of patients with Marfan's disease or arachnodactyly (Meyer *et al.*, '58) and Hurler's syndrome (Meyer and Hoffman, '61). Since these diseases are characterized in part by skeletal defects this MPS may be one of the factors influencing osteogenesis under pathological conditions.

Neither of the two non-sulfated MPS, hyaluronic acid and heparin, used in the experiments aided estrogen in inducing ossification in the implants and this finding may indicate the importance of sulfate esterification.

Summary

Studies on osteogenesis in transplanted bones of mice have been reviewed, and the importance of the revascularization and sequential development of blood supply within the ectopic bones has been discussed. Experiments were designed in which purified MPS were placed adjacent to the metaphyses of epiphysectomized tibiae which were in turn placed into the subcutaneous abdominal region. Chondroitin sulfate A and B, and kerato-sulfate aided estrogen in inducing hyperossification of the transplants. Chondroitin sulfate C, heparin sulfate, and two non-sulfated MPS, hyaluronic acid and heparin, did not play a role in inducing hyperossification. The relationship between the MPS of Hurler's and Marfan's syndrome and our findings are discussed.

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THE USE OF DEUTERIUM ISOTOPE EFFECTS FOR STUDIES OF DNA STRUCTURE AND FUNCTION*

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THE BIOLOGICAL RESPONSES to deuterium oxide (water containing the heavy, non-radioactive isotope of hydrogen) are of interest because of (a) the variety of functional disorders which are elicited in various organisms; and (b) the evidence that some of the primary isotope effects are on DNA† the genetic material.

The biological effects due to inhibition of heavy water are summarized in Table I. It is noteworthy that the reproductive system is one of the most sensitive. Genetically defective sperm are produced in mice at deuterium plasma levels which produce no other demonstrable effects;¹ the formation of spore-bearing structures in fungi is completely inhibited by deuterium levels which do not appreciably inhibit growth.^{2, 17}

TABLE I
Biological Effects of D₂O

Concentration (plasma level)	Organisms	Effects
25-30%	Rats, mice (1, 6)	Sterility Anemia Liver enlargement and dysfunction CNS disturbances
	Rabbits (4)	Anemia Inhibition of DNA synthesis
30%	Sea urchin embryos (3)	Inhibition of cell division Atypical development and death
70%	Fungi (2)	Deletion of spore formation Partial inhibition of growth
90%	Bacteria (5)	Markedly increased genera- tion time Impaired β -galactosidase induction

The evidence that certain primary isotope effects are on DNA may be summarized as follows:

(a) the instantaneous inhibition of cell division and DNA synthesis when cells are transferred into a deuterium environment;³ (b) the continued production of genetically defective sperm for a considerable period in deuterated male mice following return to regular drinking water, suggesting that deuterium has made an impression on the information-bearing units;¹ (c) the isolation of DNA in a modified form from deuterated animals;⁴ and (d) the interference by heavy water with the genetically controlled synthesis of β -galactosidase in bacteria.⁵

The synthesis of this enzyme has been shown to be controlled through a mechanism such as that represented by Rich¹¹ in Fig. 1. Whether or not β -galactosidase is synthesized in intact *Escherichia*

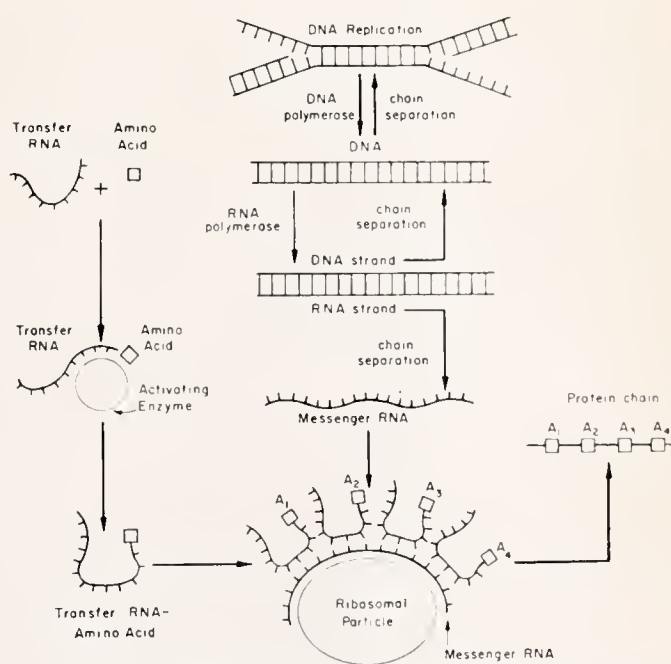


FIG. 1. A schematic outline of nucleic acid function. The ladder-like figures represent two-stranded nucleic acids and the bases are represented by the short cross lines.

*Supported by National Institutes of Health Grant A-721.
†Deoxyribose Nucleic Acid.

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coli cells apparently depends upon the production of the corresponding messenger RNA which in turn depends upon the functional state of DNA *in vivo*. In some manner, which is not yet understood, this ordinarily dormant system responds to the presence of environmental β -galactosides such as lactose, resulting in activation of enzyme synthesis. Since the presence of heavy water greatly impairs the ability of the cell to respond to β -galactosides but does not appreciably effect enzyme synthesis once it has been initiated, it has been postulated that the presence of heavy water modifies the functional state of DNA *in vivo*.⁵

If certain of the effects of deuterium on living systems are due to effects on the genetic material, then one should be able to detect an effect on DNA *in vitro*. A likely site of action would be on the keto-enol tautomerism of the purine and pyrimidine bases (summarized in Fig. 2), since these equilibria result in rapid exchange of hydrogen (or deuterium) with the medium. Moreover, since only one tautomeric form is involved in hydrogen bonding, (which is apparently the mechanism of specificity by which the genetic material reduplicates or transfers information) one would expect any interference with the tautomeric equilibrium to have biological repercussions. Guanine in particular is a likely site of isotope effect since it has a lower dissociation constant than the other

bases¹² and since the guanine- cytosine hydrogen bonds appear to make larger contributions to the stability of DNA than do the adenine-thymine hydrogen bonds.

Unfortunately the ultraviolet absorption spectra of the keto and enol forms of guanine are so similar that it is difficult to estimate possible isotope effects on the equilibrium. A close structural

TABLE II
The Effect of D₂O on 6-Thioguanine Tautomerism

pH	% Keto form in H ₂ O	pD	% Keto form in D ₂ O
6.5	99	6.4	99.5
7.0	93	6.9	99.5
7.3	87	7.4	96
7.5	82	—	—
7.7	75	7.7	90
—	—	7.9	85
8.0	62	8.1	77
8.5	31	8.4	64

Solutions of 0.02 M sodium phosphate buffer at the indicated pHs were made, containing 0.05 μ mole/ml of 6-thioguanine. The % keto form was estimated by absorption measurements at 341 and 311 m μ , and comparison with the known absorbance of the keto form (pH 4.5) and the enol form (pH 10.0). The pD for solutions in D₂O was calculated by the method of Glasoe and Long (8). The 99.83% D₂O was obtained from Bio-Rad Labs, Richmond, California.

analogue, 6-thioguanine, does have distinct absorption spectra for the various forms as seen in

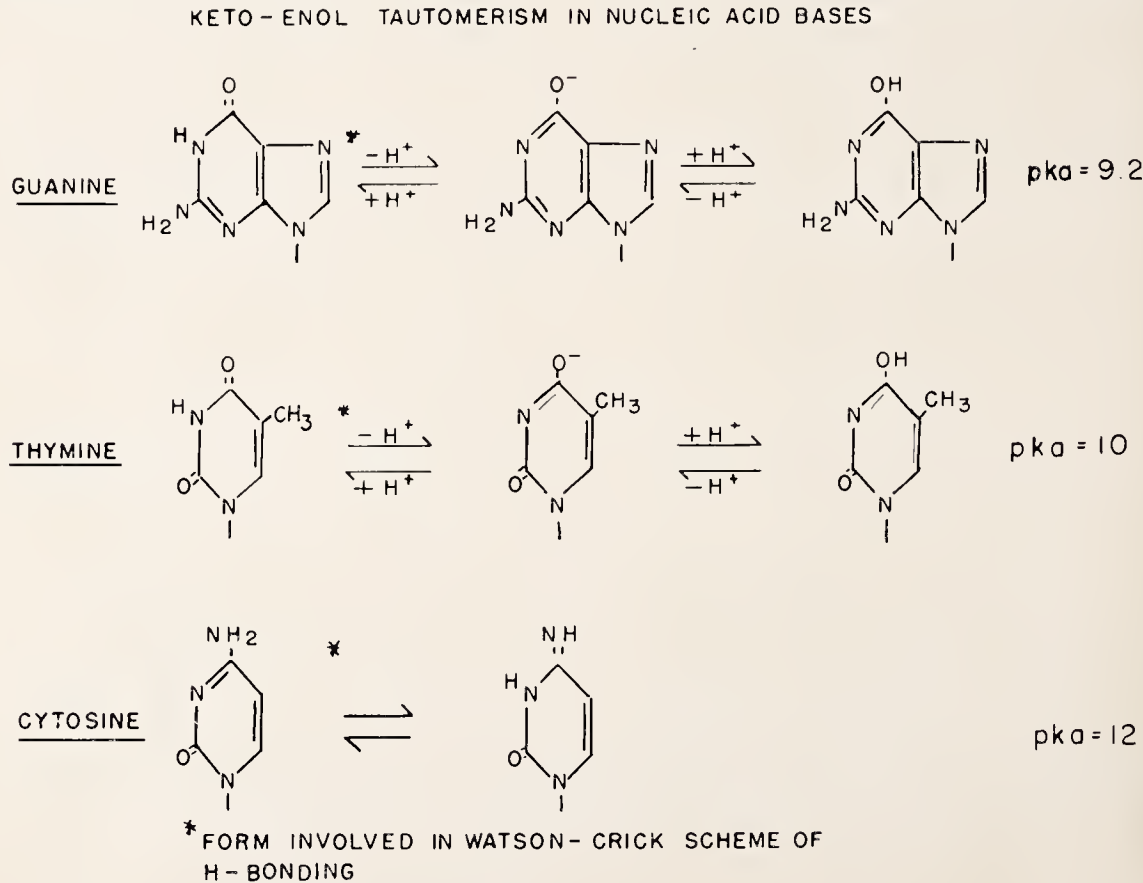
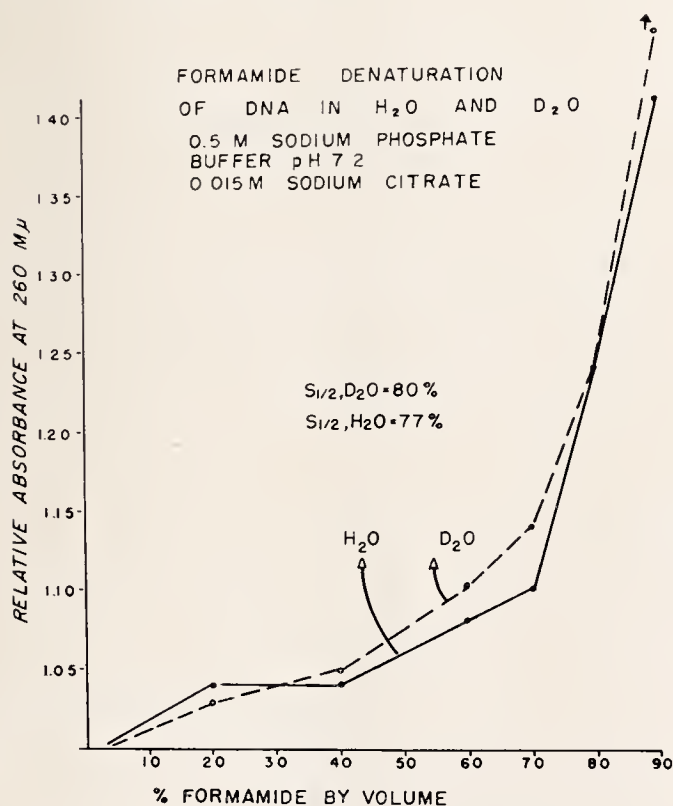
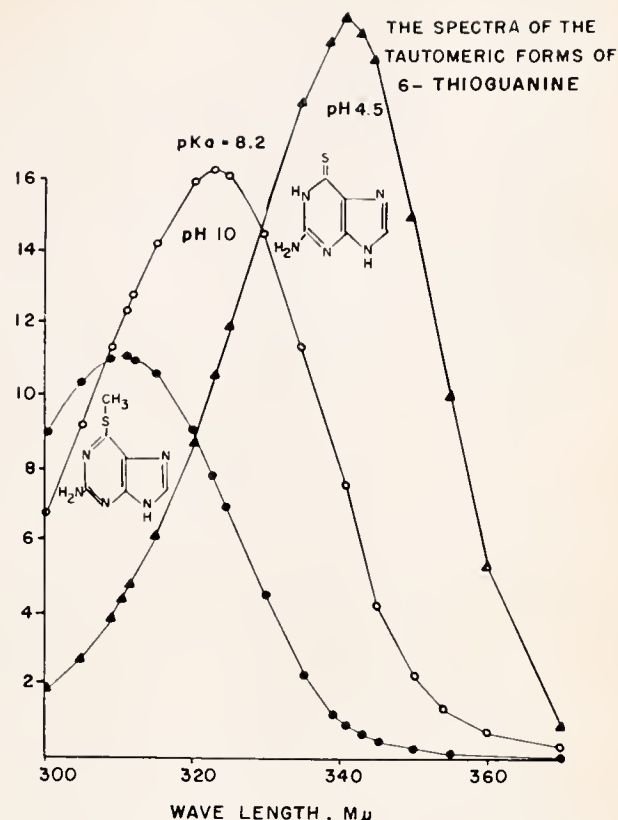


Figure 3. By means of appropriate absorption measurements, it is possible to calculate the percentage keto form existing in solution at a particular pH or pD. The results are shown in Table II. It is apparent that the presence of deuterium oxide shifts the equilibrium towards stabilization of the keto form when comparison is made at the same pH and pD. The apparent pK of 6-thioguanine is 8.2 in H₂O and 8.6 in D₂O. Similarly, the pK of guanine (estimated spectrophotometrically) was found to be 9.2 in H₂O and 10.0 in D₂O. The pK of thymine did not vary appreciably (10.0 in H₂O; 10.4 in D₂O). The stabilization of the keto tautomer of guanine by deuterium oxide would be a very small effect at physiological pH since with a pK of 9.2 it would be predominantly in the keto form. The small magnitude of these isotope effects makes it unlikely that they would be significant in the metabolism of nucleotides and polynucleotides except possibly in the case of high molecular weight polynucleotides such as DNA, where thousands of stacked, hydrogen-bonded bases are involved.



We therefore investigated the properties of DNA in aqueous and deuterated solutions. No appreciable differences were noted in the denaturation of DNA brought about by formamide (Fig. 4). No appreciable differences have been detected in the heat denaturation profiles of DNA or other polynucleotides in water or heavy water.^{7, 16, 17} No experiments have been reported,



however, which investigated the reformation of denatured DNA under these conditions. The results of a typical renaturation experiment are presented in Table III. An increased degree of renaturation (ranging from 7-15% in different DNA preparations from chicken erythrocytes) has been noted in the presence of heavy water. The higher degree of reformation in D₂O suggests that heat denaturation may be incomplete in D₂O, and the persistence of a few hydrogen bonded regions, by maintaining the strands in register, may promote helix reformation. Evidence has been presented for postulating that such heat resistant

TABLE III
DNA Renaturation in D₂O and H₂O
Relative Absorption at 260 mμ

	H ₂ O*	D ₂ O*
Control	1.0	1.0
Denatured ⁺	1.40	1.37
Renatured _x	1.07	1.04
% Renaturation	82%	89%

* 0.3 M NaCl and 0.03 M sodium citrate solutions containing 20 ν /ml of DNA prepared from chicken erythrocytes by the method of Emanuel and Chaikoff (13).

⁺ The denaturation was carried out by heating the DNA solutions in the presence of 4% HCHO to 100°C for 10 min. and cooling. The presence of HCHO inhibits DNA renaturation (15).

_x The renaturation was carried out by heating DNA solutions in screw-cap test tubes at 100°C for 10 min. followed by incubation at 67°C for 2 hours and 25°C for two hours. These are optimal renaturation conditions for many DNAs (14).

regions contain a preponderance of guanine-cytosine hydrogen bonds.⁹ It would seem likely, therefore, that the factors which lead to breakdown of DNA guanine-cytosine H-bonds may be dependent in part on shifts in the keto-enol equilibrium, and impairment of this mechanism by deuterium oxide may result in incomplete strand separation.

While impaired DNA strand separation offers an explanation for many of the potent deuterium isotope effects on DNA synthesis and cell division *in vivo*, how does this explain the inhibitory effects on regulation of enzyme synthesis and on the apparently most sensitive biological process of all—cell differentiation?

One possible explanation would be that genetic control of enzyme synthesis and cell differentiation involve changes in the pattern of folding or the degree of hydrogen bonding of DNA at specific regions which are predominantly guanine or cytosine in base sequence. A theory of cell differentiation and metabolic control has recently been published which postulates selective readout of genetic information mediated by changes in the patterns of folding.¹⁰ Likewise, evidence has been presented which suggests disturbance of the physical structure of DNA *in vivo* can result in impaired and atypical forms of differentiation or complete deletion thereof.²

Summary

The biological effects of inhibition of water containing deuterium, the heavy isotope of hy-

drogen, have been discussed. Certain of these biological responses appear to be due to isotope effects on the genetic material, DNA.

Studies with purine bases and DNA *in vitro* are in accordance with the *in vivo* effects of deuterium oxide. Isotope effects have been observed on guanine keto-enol equilibrium, and on the reformation of heat denatured DNA in solution.

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WHAT'S NEW?



Delayed Speech in Children

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H. A. Ted Bailey, Jr., M.D.**

ONE OF THE MANY PROBLEMS confronting the family physician is that of delayed speech in children. While this problem is often not of a serious nature, it is important and sometimes alarming to the parents. This article concerns itself not with simple difficulty in the proper articulation or phonation of speech but with the reasons for the delay in the onset of appropriate communicative skills.

There is no unanimity of opinion regarding the precise age at which a child's speech development may be considered retarded. However, it is safe to say that if a child has not begun to use meaningful language by the age of thirty (30) months, a definite pathology exists which he is very unlikely to outgrow.

The main causes of delayed speech will be discussed briefly in this paper. The following is a list of these disorders which is presented in an arbitrary order and not necessarily according to their frequency of occurrence:

- (1) Psychosocial disorders
- (2) Mental deficiency (retardation)
- (3) Autism (retreat from social experience and preoccupation with fantasy life)
- (4) Hearing loss
- (5) Dysarthria (disorders of the nervous control of the organ(s) of articulation)
- (6) Infantile aphasia (disorders of linguistic symbolization due to lesion(s) of the ap-

propriate language center(s) of the cerebrum)

Certain psychosocial factors may inhibit the normal onset of speech development. These may be manifest from such conditions as lack of proper motivation for speech, sibling rivalry, overindulgent parents, poor speech models, or bilingual conflict in the home. While psychosocial phenomena are prevalent, they are the easiest of the conclusions to arrive at prematurely and therefore, must be made cautiously for if made erroneously, a serious delay in time may result before the true cause is determined.

It is well accepted that speech is an imitative process. For one to talk, he must be aware of the meaning of speech. The mentally deficient child is usually retarded in language development in direct proportion to his development in other areas. Developmental history is of great value to the physician in determining these cases although a child may be retarded in one area and be quite normal in another. There is, of course, always great danger in relying completely on parental information as this is so easily emotionally colored.

Speech is a social thing. We have ideas and thoughts and convey them to others, in part because of the basic gregariousness of our natures. The autistic child does not communicate with others since his social sense has not properly developed. He receives his gratification from within and has little or no desire for outward contact.

*Director, Audiology Department, Bailey Ear Clinic, Little Rock.

**Head, Division of Otolaryngology Department, Department of Surgery, University of Arkansas Medical Center.

The lifeless appearance, mask-like facies and frequent use of fetishes such as spinning or rocking, often make it difficult to differentiate the autistic from the mentally retarded child despite the fact that the autistic child is frequently possessed of normal to high intelligence.

Since speech requires imitation, it is logical that if the child cannot hear spoken language, he cannot imitate it. The gurgling and cooing sounds which the baby makes are called babbling. He does this because of its kinesthetic gratification. After he begins to hear the sounds and realizes that it is he who is producing them, he goes into the stage of lalling. This is the stage when the six month old child with normal hearing begins to experiment with inflection and when the profoundly deaf child stops babbling entirely. After a variable period of vocal play, the average child begins to develop true speech starting at twelve to eighteen months of age, and the deaf child falls further and further behind in his language development.

Hearing loss in young children is difficult to ascertain. The parents will report that sometimes the child appears to hear normally and other times seems to be completely deaf. Gross tests of hearing acuity such as hand claps, automobile horns, etc., are frequently misleading to the physician, as the child may have good hearing through the low frequency range and thus be able to hear certain sounds normally, and yet his poorer hearing in the higher frequencies where the consonant sounds occur results in his difficulty in understanding and, therefore, his inability to reproduce normal speech.

Determination of the normalcy of the neurophysiological mechanism of speech is essential. Dysarthria or impaired articulation due to improper nervous innervation to the muscles of articulation may be on a central (e.g. cerebral palsy) or a peripheral (e.g. poliomyelitis) basis. The determination of normalcy of this mechanism may be made by determining their collateral

functions with particular attention made to the integrity of the Vth, VIIth, IXth, Xth, XIth, and XIIth, cranial nerves. It is perfectly possible, of course, for a patient to have dysarthria with no apparent disability other than impaired articulation of speech.

The use of spoken language requires the power of abstraction and use of arbitrary symbols. If the area(s) of the brain subtending these functions are not normal, the child may have the desire to speak, but be unable to find the words to express his thoughts, or he may hear the sounds of speech sufficiently loud, but their meaning will be as alien to him as if they were spoken in a foreign language.

Those children whose brains are damaged or "different" from the normal and in whom language does not develop normally, have a condition which we refer to here as aphasia. This may be on an expressive basis (speaking and writing) or on a receptive basis (hearing and reading). The language disorder of the child with infantile aphasia is similar to the adult who has suffered a cerebro-vascular accident, but is naturally much more difficult to diagnose. The problem of aphasia in young children is the most difficult to diagnose and its determination must be made through differential diagnosis after elimination of the other conditions has been made.

In cases of delayed speech the primary objective of the physician is to detect it as early as possible and determine the probable cause. Consultation with a related specialist may be of great assistance since early determination of the etiological factor is often quite difficult.

Early recognition of a language disorder by the physician and prompt professional management of the case can frequently alter the entire educational and social development of a young child. In an area where speech pathologists or a qualified speech therapist is available, such a professional person's counsel and treatment is of tremendous assistance to the physician and patient alike.

TEACHING SEMINAR

*Department Pediatrics And Pathology
University of Arkansas Medical Center
Little Rock, Arkansas*



Chronic Hemolytic Anemia with Paroxysmal Nocturnal Hemoglobinuria

William F. Denny, M.D.

Clinical Investigator, VA Hospital

THIS STRANGE AND UNCOMMON condition is a chronic hemolytic anemia characterized by episodic increases in intravascular hemolysis resulting in hemoglobinemia and hemoglobinuria. The hemoglobinuria is peculiarly noted on voiding after sleep, thus the commonly used term, paroxysmal nocturnal hemoglobinuria. An older term is the Marchiafava-Micheli Syndrome after early descriptions of the condition by these men. Little was known of the mechanism of the hemolysis until 1938 when a series of studies by Jordan, Ham, Dacie, and others began to clarify the intrinsic, acid sensitive nature of the process.

Clinical Features

There is no observed racial or sex incidence, and the condition has never been reported as congenital or familial. In fact Crosby reported a case in one of identical twin sisters, the other sister remaining normal.¹ The onset of recognizable symptoms is usually during adult life, most commonly the 3rd or 4th decade, although a few cases during childhood have been reported. The clinical phase of the illness is insidious in onset and usually is ushered in by symptoms of anemia and the finding of hemoglobinuria.

Most cases have a chronic, moderately incapacitating illness, but wide variation in severity is noted. Exacerbations during the chronic anemic

process vary from intervals of weeks to even months with rare severe cases having hemoglobinuria for prolonged periods, resulting in severe anemia requiring multiple transfusions. Although the nocturnal rhythm is characteristic, occasional reported cases have not shown this. Sleep seems to be the key factor and continues even though normal depth and volume of respirations are maintained artificially by respirator. Jaundice and some dusky skin discoloration from siderosis may develop during attacks, as well as severe lumbar backache and fever. The only physical finding of note, other than pallor and jaundice, is splenomegaly found in 50-75% of the cases. Precipitating factors are numerous and reflect the delicate balance maintaining the fragile RBC's intact. Among these are: infection, blood or plasma transfusion, pregnancy, splenectomy, oral iron salts, menstruation, injectable drugs or vaccines. Although many cases seem to improve with time, intercurrent illness, the chronic anemia, and a peculiar predisposition to thrombotic episodes (50%) definitely leads to a reduced life expectancy.

The usual laboratory studies show a macrocytic anemia with reticulocytosis and hyperplasia of erythropoiesis in the bone marrow. Leukopenia and moderate thrombocytopenia is common, and indirect bilirubinemia is often found during at-

tacks. No spherocytes are seen and the osmotic fragility is normal. Siderocytes and Heniz bodies are absent even after splenectomy. Grossly visible reddish discoloration of the patient's plasma, characteristic of excess levels of plasma hemoglobin, is noted during the active phase of the disease and the urine will contain hemoglobin and hemosiderin. The history of a nocturnal rhythm to the passage of hemoglobinuria plus the demonstration of hemoglobinemia suffices to give a presumptive clinical diagnosis.

Pathogenesis

The fundamental defect in any type of hemolysis may be (a) intrinsic to the red blood cells, (b) some abnormality of the red cell environment, or occasionally (c) a combination of both types of defect. It has been shown that normal red cells transfused into patients with PNH survive normally, but when PNH red cells are transfused into normal recipients a shortened cell life span is observed. This evidence is the strongest available to implicate some abnormality of the red cell itself as the prime factor in susceptibility to hemolysis. The invariable findings of nocturnal hemolysis, coupled with the *in vitro* demonstration of cell hemolysis on exposure to acidified serum originally led to the hypothesis that reduced ventilation during sleep resulted in CO₂ retention, lowered pH and resultant hemolysis. The clinical observation that ammonium chloride administration promoted hemolysis and alkali, or hyperventilation, slows hemolysis was often cited as support for this theory of the pathogenesis of PNH.² Observed facts, however, strongly oppose this "too simple" explanation. During sleep the pH seldom lowers more than minutely and never to the degree of the pH necessary for *in vitro* hemolysis. The nocturnal rhythm was not affected by 10 days of sleeping in a Drinker respirator which maintained normal daytime speed and depth of respirations.¹ Later studies have shown the importance of certain plasma factors necessary for hemolysis to take place, and it is possible that minor changes in these factors during sleep result in the cell destruction. Furthermore, not all the PNH red cells seem susceptible to hemolysis or vary widely to their sensitivity to hemolysis.

In the *in vitro* studies of the abnormal red cells, electron microscopy has disclosed abnormalities in the stroma and other studies have shown changes in the stromal lipoprotein content. A

regular reduction in erythrocyte acetylcholinesterase activity has been observed, but its relation to the hemolytic mechanism remains unknown.³ Incubation of PNH red cells at body temperature with either autologous serum or serum from serocompatible normal persons results in some hemolysis, but if the serum is heated prior to the test no hemolysis occurs, this demonstrating a heat labile plasma factor whose presence is necessary for hemolysis. Lowering the pH to 6.5-7.0 will increase the degree of hemolysis to easily detectable amounts and forms the basis of Ham's acid serum test for the diagnosis of PNH. Group A erythrocytes with the PNH defect are more sensitive to anti-A isobodies, and cold operative antibodies usually affect PNH cells as well. Complement is necessary for this reaction and has subsequently been shown necessary for the *in vitro* demonstration of PNH hemolysis. Direct antiglobulin tests are almost always negative. The magnesium ion and properidin have also been shown necessary for this *in vitro* reaction, to occur.

Crosby has postulated a check and balance system with two plasma factors being hemolytic and two factors antihemolytic. One hemolytic factor and one antihemolytic factor are heat labile and destroyed by thrombin. The antihemolytic factor, however, is destroyed rapidly, thus explaining the observed aggravating action of thrombin on the hemolytic process.¹ Dicumarol is known to inhibit thrombin formation and this may explain its reputed beneficial effect in slowing hemolysis. Heparin is known to accelerate the hemolysis, probably by action on the plasma inhibition factors.

The cause of commonly found leukopenia and thrombopenia is not known but some observers feel a similar susceptibility to hemolysis is present. In rare cases bone marrow hypoplasia has been found in addition to PNH, and although the marrow usually shows erythroid hyperplasia, regenerative crises may develop with maturation arrest of the normoblasts. An interesting speculation is that these cases may be due to relative deficiencies of folic acid, or B₁₂.⁶

Treatment

The most rational approach to treatment would seem to be some attempt to affect the interaction between the intrinsic red cell defect and the delicately balanced plasma system. The administration of alkali will slow the hemolysis but

exacerbation is usual after stopping the alkali. ACTH or adrenal steroids have proven useless. Splenectomy not only fails to help but the mortality from the procedure is quite high. Dicumarol has been recommended on two counts; 1) that it inhibits the formation of thrombin, thus slowing hemolysis, 2) to prevent the often life threatening thrombotic episodes which frequently occur during the recovery phase of crises. 6% dextran infusions seem to temporarily slow hemolysis. Since it is known to bind properidin this may be its mode of action, but surface factors secondary to RBC coating also seems likely.

Blood transfusion remains the only effective way to manage the patient in acute episodes except, of course, for treating the initiating cause if possible. Whole blood transfusions often will produce severe reactions, probably by donor plasma factors increasing destruction of the patient's red cells.⁵

In 1948 Dacie demonstrated that saline washed red cells were well tolerated and produced reaction much less frequently than whole blood.⁴ The beneficial effect is not only due to the in-

crease in blood values, but also a more lasting effect due to inhibition of normal erythropoiesis. This would lead to fewer abnormal cells present in the peripheral blood and thence to slowed rated hemolysis.

Vigorous treatment of intercurrent disease and the judicious use of saline washed red cells may be effective in prolonging the patient's life, as well as preventing complete incapacitation. If serious threats such as thrombosis do not intervene, considerable longevity can be expected (5).

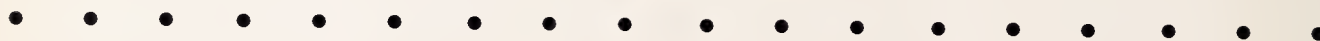
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ELECTROCARDIOGRAM

OF THE MONTH



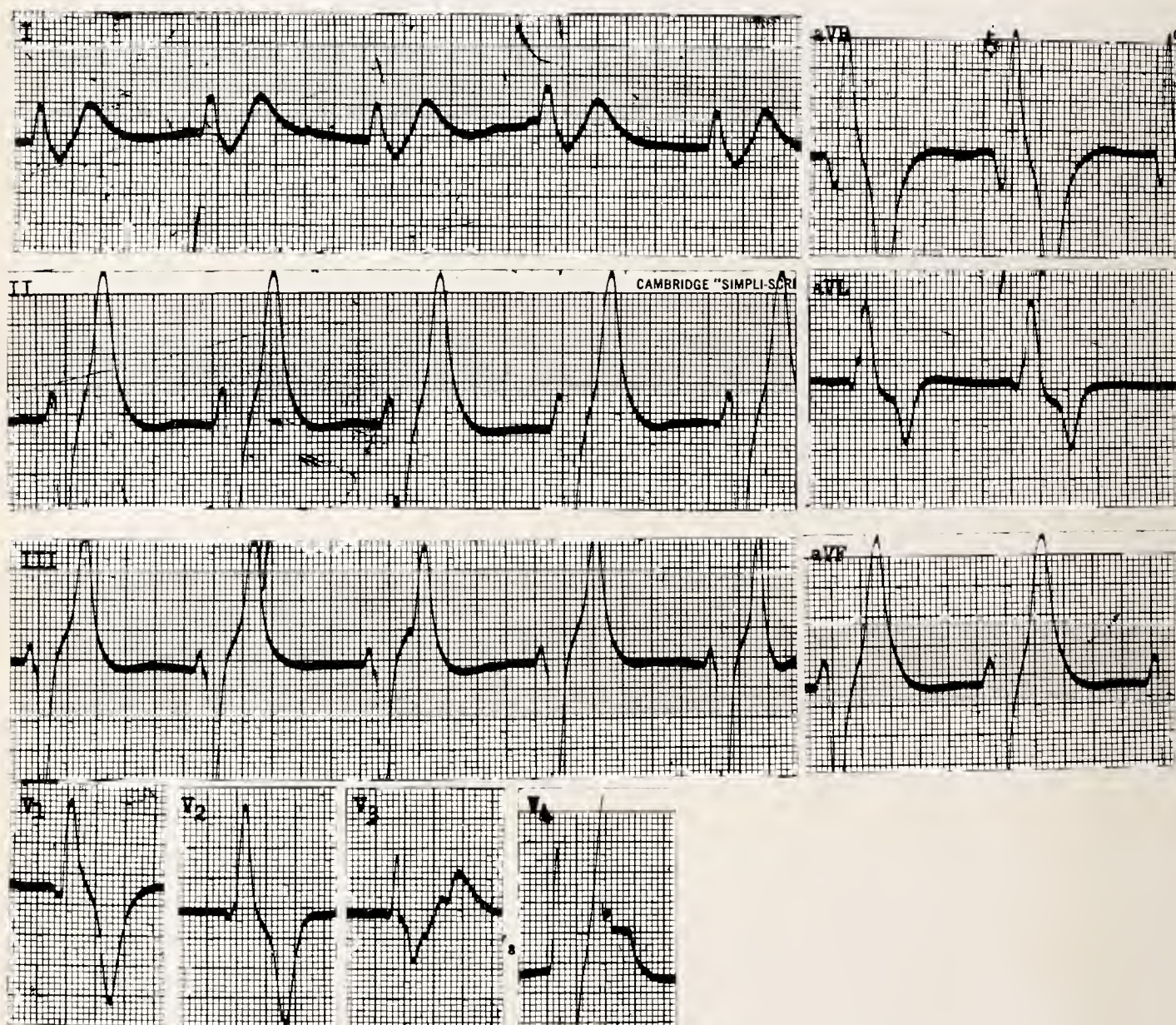
WHAT IS YOUR INTERPRETATION?

Age: 43 Sex: F Build: Stocky Blood Pressure: 220/140

Medication: Digitalis, amount not known.

History: Diagnosis of arteriolar nephrosclerosis.

ANSWER ON PAGE 427



The Department of Medicine, University of Arkansas Medical Center

*James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 430



03-12-35 11 year old white male

Pain in the right hip with limitation of motion and muscle spasm.



PUBLIC HEALTH AT A GLANCE

YELLOW FEVER

ESTIMATES OF YELLOW FEVER cases in the United States between 1793 and 1900 exceed 500,000. The last epidemic of yellow fever in the United States occurred in 1905, resulting in 8,399 cases and 908 deaths. Cases on vessels arriving at quarantine stations were reported in 1906, 1907, 1916, 1921, 1922, 1923, and 1924. Several cases of unknown origin have occurred in widely scattered areas of southern states. The last case reported in the United States was a fatal case at Houston, Texas, October 8, 1924, occurring in an immigrant from Mexico. Sporadic cases have occurred in Panama, Costa Rica, Honduras, Nicaragua, and Guatemala. From the heart of the Congo or the wilds of the Amazon to the teeming millions in New York City is but a matter of a few hours travel by air, and it is possible that a person could contract yellow fever in the jungles of Africa or South America and reach this country before the incubation period is over. The *Aedes aegypti*, or yellow fever mosquito, is the only widely distributed species in this country which is known to carry yellow fever virus. It has played an active part in the spread of this disease in many areas of the world, and it is continuing to do so. The gradual northward march of this mosquito within this country is of real concern to Public Health officials. Areas inhabited by this species of mosquitoes are called yellow fever "receptive areas." Louisiana, Arkansas, Mississippi, Tennessee, Alabama, Georgia, Florida, South Carolina, and part of Texas comprise the "receptive area" of continental United States. Our "receptive area" also includes Hawaii, American Samoa, Guam, Puerto Rico, Ryukyu Islands, U. S. Trust Territory of Pacific, Virgin Islands, and Wake Island.

The prevention of entry of yellow fever into this country is under the control of the Division of Foreign Quarantine of the United States Pub-

lic Health Service. Prevention of the disease in citizens of our country is undertaken by recommending yellow fever immunization before going into countries where yellow fever is found. At ports of entry, proof of yellow fever vaccination within the previous six years of any person arriving from yellow fever areas going into yellow fever "receptive areas" is required. Further precaution is by means of a medical examination and, if indicated, isolation. All ships and airplanes traveling from yellow fever areas to ports of "receptive areas" in this country must be sprayed to kill *Aedes aegypti* mosquitoes. "Monkeys arriving from or having passed through a yellow fever infected local area, or an area in which there is reason to suspect the existence of yellow fever virus" shall be admitted only after specific regulations have been complied with.

For the protection of the citizens of the United States who may travel in yellow fever areas, the Division of Foreign Quarantine of the United States Public Health Service has set up Designated Yellow Fever Vaccination Centers. The Arkansas State Health Department was designated such a center on January 1, 1957. Prior to that date yellow fever vaccinations were not available in Arkansas. There are now 119 such designated centers in the United States and its possessions, with Connecticut, Nebraska, Nevada, New Hampshire, New Jersey, North Dakota, South Dakota, Vermont, and Wyoming being the only states out of the 50 without a Center.

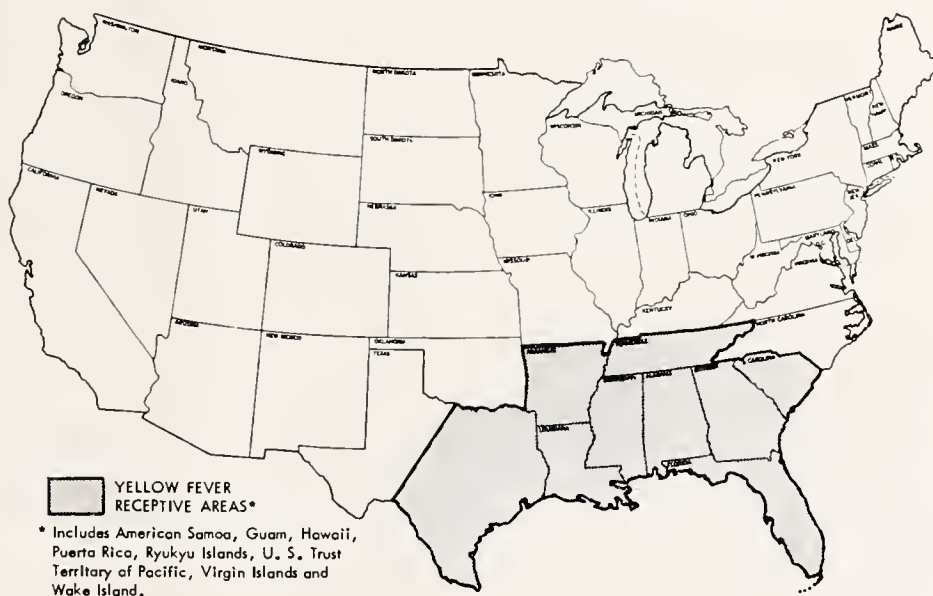
Of the 119 Centers, 66 charge a fee and 53 do not. The 53 which do not charge a fee include: 35 U. S. Public Health Service installations; 8 private groups (3 airlines, 2 oil companies, 2 Community Health Centers in Canal Zone, and a Hospital for American Samoa); 5 State Health Departments (ARKANSAS, Illinois, Mississippi, New York, and Rhode Island); and 5 local health

departments (3 in Florida, and one each in Tennessee and Texas). The 66 which do make charges are the Alabama State Health Department, 30 local health departments in 16 States, and 35 private groups (4 businesses, 1 Overseas Medical Center, 1 airline, and 29 hospitals, clinics, universities, etc.).

The first yellow fever immunizations were given at the Arkansas State Health Department on January 7, 1957. The vaccinations given total 730, as follows: 1957, 146; 1958, 93; 1959, 81; 1960, 88; 1961, 153; and 1962, 169. A permanent record of the date, lot number of the vaccine, names and addresses of vaccinees, and the vaccinator is maintained. During these six years the Arkansas State Health Department has used 276 5-dose packages of yellow fever vaccine at a cost of \$938.40. Yellow fever vaccine is a live culture of modified yellow fever virus and is highly thermolabile (unstable when heated) and must be kept frozen until time to mix and use. It is for this reason that the vaccine is distributed to Designated Centers only and cannot be distributed to local health departments or physicians, and that there is a requirement that all vaccinations must be given at a Designated Yellow Fever Vaccination Center which will affix its special stamp. The time of 10:00 A.M. each Monday, except holidays, has been set for giving yellow fever vaccine at the Arkansas State Health Department. If the vaccine is not used within thirty minutes to an hour after preparation, it must be discarded. Since there are frequently two or three, or six or seven individuals, who appear for the immunization, and the vaccine is packed in 5-dose packages, a loss is sustained, which has amounted to about 47% during the six years the Center has been in existence. However, if one traveler became infected in a yellow fever area before coming into Arkansas, a yellow fever "receptive area" with few individuals properly protected by immunization, a serious epidemic could result. Hence, our loss is fully justified and actually can be considered a wise investment.

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YELLOW FEVER RECEPTIVE AREAS IN THE UNITED STATES





EDITORIAL

ABUSE OF TRANQUILIZERS

A. Rosendale, M.D.*

THERE EXISTS IN the lay minds the belief that the tranquilizers are a cure-all for any and every emotional disorder. This trend is enhanced by the physician who prescribes a few of the pills with the attitude that they will do no harm even if they do no good. This is an attitude that should be condemned.

In the field of psychiatry the need for the tranquilizers has been proven beyond doubt. But these drugs should be held in the province of the specialist or the physician who has had adequate psychiatric training. Many doctors would not consider cutting into a belly without having had sound surgical training, yet these same men do not hesitate in attempting pharmacopsychic therapy.

There are several factors that the physician should consider when contemplating the prescribing of a tranquilizer. The first and foremost is his ability to handle any crisis that might arise during treatment. Can he handle the latent suicide, the one who responds initially to treatment but on withdrawal of the drug, develops self

destructive tendencies? Can he manage the case that swings from mania to depression, or the case of agitated depression which becomes worse under the influence of the drug?

There is no short cut to psychotherapy. Since the advent of the tranquilizers, the overall tendency has been to use them as substitutes for the time consuming business of investigation of the patient's reaction to his environment. If this procedure is bypassed, then both the patient and the physician are fighting a losing battle. When the drug is discontinued, the problem remains, often greater than at the beginning of treatment. No physician would consider treating a bacterial infection with aspirin to allay the fever without actively treating the underlying cause; yet, in effect, that is what he does when treating an emotional disorder without adequate background investigation.

Tranquilizers are effective and should be used, but only within the capability of the individual physician, not on the advice of an eager drug detail man whose job it is to sell the company's product.

*Eudora, Arkansas

THE ARGUMENT AGAINST MEDICAL CARE UNDER SOCIAL SECURITY

Mr. Paul Schaefer, the executive secretary of the Journal of the Arkansas Medical Society, recently wrote the following excellent letter in answer to an editorial favoring medical care for the aged under Social Security. Because of the currency of the problem, it was felt wise to publish this as an editorial in the hopes that members of the Arkansas Medical Society could use this as a basis of discussion with their patients or interested groups:

"The moderate tone of your March 1st editorial on President Kennedy's social security approach to health care of the aged allows one to hope that you might be amenable to some discussion of the points you make.

"Those opposed to social security medicine include the Chambers of Commerce, the Farm Bureau, the Insurance Industry, the medical profession, Federation of Women's Clubs, dental profession, pharmaceutical profession and too many others to mention here. Since 1943, when the first of a series of similar measures was introduced in Congress, these groups have honestly and objectively studied the problem, and the various solutions offered. Their analysis of the subject breaks it down exactly as you have, into two basic questions: (1) Does a large problem exist, and (2) if so, what is the most practical way of meeting it?

"In 'A Profile of the Aging: USA' sixteen professors of fifteen universities under Professors J. W. Wiggins and H. Schoeck of Emory University addressed themselves to the first question above: What is the extent of the problem? Contrary to the dismal, hopeless picture of dependency of our senior citizens painted by proponents of the social security welfare approach to care for the aged, they found that: The model annual income of the aged is between \$2,000 and \$3,000. Their cash equivalent assets over liabilities are in excess of \$10,000. 33.6% are still working, mostly on the same job held prior to reaching retirement age. Sixty-four percent were covered by insurance for medical purposes. Ninety-six percent were free of medical debts. Other studies of OASDI beneficiaries have shown that over 70%

own their own homes—87% mortgage free. Liquid assets of those over 65 are the highest in any age group and have increased faster.

Certainly all this is not to say that there is no problem in paying for health care for some of those over 65. It does indicate that only a small minority of those over 65 actually cannot pay their hospital and medical bills. The disagreement is over whether the solution shall be a political one or whether through the Kerr-Mills Law, Society will take care of those who cannot take care of themselves and ask those who have the means to pay their own way.

When you impose upon 180 million people a compulsory plan such as the King-Anderson bill, increasing social security taxes on everyone, forcing all health care facilities under government operation for the sake of caring for only a tiny minority of the population, it is like the adoption of the prohibition act when one hundred million Americans were deprived of the right to use alcoholic beverages because two million unstable personalities were unable to use it in moderation. Should we all be deprived of our present system of medical care, our privilege to choose our doctor and hospital—should we all give up our status and our privileges as *paying* patients because a few are indigent after 65? All this plus an increase in Social Security taxes?

"We do not think, to use your expression, that 'the Medicare plan would bring the whole structure of medical practice tumbling down' but we know that it would rather quickly be eroded away. The experience of such plans in Europe as well as the history of all welfare legislation indicates nothing but expansion of coverage to include everyone, liberalization of benefits, overcrowding of hospitals, production-line medicine and ever-increasing government control, reducing the quality of medical care received by everyone—not just those who can't pay.

All this to take care of a relatively few people who can be better cared for by the humanitarian and practical Kerr-Mills law introduced by Congressman Mills of Arkansas."

PROGRAM

EIGHTY-SEVENTH ANNUAL SESSION

ARKANSAS MEDICAL SOCIETY

ROBINSON AUDITORIUM AND MARION HOTEL, LITTLE ROCK, ARKANSAS

APRIL 21 - 24, 1963

ANNOUNCEMENTS

REGISTRATION

The registration desk will be located on the mezzanine of the Hotel Marion on Sunday, April 21st, and will be open from 10:00 a.m. to 5:00 p.m. Officers of the Arkansas Medical Society and county society delegates will be pre-registered. Delegates are requested to register as early as possible, presenting credentials in proper form at the time of registration.

Registration will be in the vestibule of the Robinson Auditorium on Monday and Tuesday from 8:30 a.m. to 5:00 p.m. and on Wednesday from 8:30 a.m. to 12:00 noon. All members and visitors are required to register, as admission to all sessions will be by badge. Bring your 1963 membership card to facilitate registration. Members of the American Medical Association from other states may register as guests.

Special telephone service will be maintained at the registration desk—phone number FRanklin 5-1061.

MEETINGS OF THE COUNCIL

The Council of the Arkansas Medical Society, including past presidents, will meet as follows:

Sunday, April 21st, 1963	12:00 noon, State Room, Marion Hotel
Monday, April 22nd, 1963	12:00 noon, State Room, Marion Hotel
Tuesday, April 23rd, 1963	12:00 noon, State Room, Marion Hotel
Wednesday, April 24th, 1963	9:00 a.m., State Room, Marion Hotel

REFERENCE COMMITTEE HEARINGS

Reference Committees appointed by the Speaker of the House of Delegates will hold open hearings to discuss resolutions and committee reports referred to them as follows:

Committee Number One—Will meet Monday morning, April 22, at 10:00 in the Rendezvous Room of the Marion Hotel.

The members of Reference Committee No. 1 are:

Louis K. Hundley, Pine Bluff, Chairman; Jack W. Kennedy, Arkadelphia; Ross Fowler, Harrison.

Committee Number Two—Will meet at 2:00 p.m. on Monday, April 22nd, in the West Room of the Marion Hotel.

The members of Reference Committee No. 2 are:

William A. Snodgrass, Jr., Little Rock, Chairman; Julius Hellums, Dumas; Guy Shrigley, Clarksville.

ELECTION TO FILL VACANCY ON THE ARKANSAS STATE BOARD OF HEALTH

The terms of six members of the Board expire December 31, 1963. The districts in which vacancies occur are listed below. All members from these counties are eligible to attend the meetings and vote for nominees. Please meet in Forum

Room of the Marion Hotel immediately following the House of Delegates meeting on Sunday, April 21st.

First District—Present member: Charles G. Swingle, eligible for reappointment.

Counties in district: Clay, Craighead, Crittenden, Cross, Greene, Lee, Mississippi, Phillips, Poinsett, and St. Francis.

Third District—Present member: John W. Dorman, Springdale, eligible for reappointment.

Counties in district: Baxter, Benton, Boone, Carroll, Crawford, Franklin, Johnson, Logan, Madison, Marion, Newton, Scott, Searcy, Sebastian, Van Buren, and Washington.

The term of D. W. Goldstein, who was appointed as a member-at-large, also expires December 31, 1963. He is also eligible for reappointment as a member from the Third District.

Fourth District—Present member: Perry J. Dalton, Camden, eligible for reappointment.

Counties in district: Ashley, Bradley, Calhoun, Clark, Columbia, Hempstead, Howard, Lafayette, Little River, Miller, Montgomery, Nevada, Ouachita, Pike, Polk, Sevier, and Union.

Fifth District—Present member: C. A. Archer, Jr., Conway, eligible for reappointment.

Counties in district: Conway, Faulkner, Perry, Pope, Pulaski, and Yell.

Sixth District—Present member: C. Lewis Hyatt, Monticello, eligible for reappointment.

Counties in district: Arkansas, Chicot, Cleveland, Dallas, Desha, Drew, Garland, Grant, Hot Spring, Jefferson, Lincoln, Lonoke, Saline.

PAST PRESIDENTS' BREAKFAST

The past presidents' breakfast will be held in the Rendezvous Room of the Marion Hotel at 7:30 a.m. on Wednesday, April 24th.

FIFTY YEAR CLUB BREAKFAST

A breakfast for members of the Fifty Year Club of the Arkansas Medical Society will be held in the Rendezvous Room of the Hotel Marion at 7:30 a.m. on Tuesday, April 23rd. Members of the Fifty Year Club are requested to make a reservation for this breakfast at the Society registration desk.

SCIENTIFIC EXHIBITS

Scientific exhibits worthy of the attention of every registrant will be on display in the Exhibit Hall of the Auditorium. These exhibits present to the Society and its guests those phases of medicine which are new and important to the practice of a physician.

TECHNICAL EXHIBITS

An imposing array of technical exhibits will be featured at this meeting. Fifty-three exhibits will furnish the latest information on progress in pharmaceutical research, developments in instruments and equipment, advances in medical literature, insurance, investments, and the newest services available to you. These exhibits represent an important contribution to the annual session. You are urged to visit each booth.

GOLF TOURNAMENT

The Annual Golf Tournament will be played at the North Hills Country Club on Sunday, Monday and Tuesday, April 21, 22, and 23. Register with club

pro at Pro Shop. The first three prizes will be announced at the annual banquet Tuesday evening. Grimsley Graham and Ray Fulmer are members of the Golf Tournament Committee.

REUNION—UNIVERSITY OF ARKANSAS MEDICAL SCHOOL CLASS OF 1953

The University of Arkansas Medical School Class of 1953 will have a ten-year reunion on Monday evening, April 22nd, at the Cimarron Club in Little Rock.

ARKANSAS-VANDERBILT MEDICAL ALUMNI

The Arkansas-Vanderbilt Medical Alumni group will have a cocktail party from 6:00 to 7:00 on Tuesday evening, April 23rd.

ARKANSAS DERMATOLOGICAL SOCIETY

On Saturday, April 20th, the annual Arkansas Dermatological Society banquet will be held, location to be announced.

On Sunday, April 21st, the Arkansas Dermatological Society will meet at the University of Arkansas Medical School Clinic at 9:00 a.m. for a presentation of clinical cases. At 10:30 there will be a discussion of those cases, followed by a noon luncheon.

CANCER SEMINAR

The Arkansas Association of Tumor Clinic Staff Members will present a Cancer Seminar on Sunday, April 21st, beginning at 2:00 p.m. in the Continental Room of the Hotel Marion. Speakers will be Dr. Francis Marion Woods, Assistant Professor of Surgery at Tufts University School of Medicine in Boston, and Dr. Phillip J. Krupp, Assistant Professor of Obstetrics and Gynecology at Tulane University School of Medicine in New Orleans. All members of the Society are invited to attend.

RECEPTION

A reception for all members and their wives will be held by the North Little Rock physicians from 5:00 to 7:00 p.m. on Sunday, April 21st at the Top of the Rock.

SENIOR MEDICAL DAY

The Tenth annual banquet for the senior medical students at the University of Arkansas School of Medicine will be held on Sunday evening, April 21st, beginning at 8:00 p.m. in the Continental Room of the Marion Hotel. This program is co-sponsored by the Arkansas Medical Society and the Arkansas Academy of General Practice. The program is as follows:

H. King Wade, Jr., President of the Arkansas Medical Society, Master of Ceremonies

Mrs. Hoyt Choate, Little Rock, "The Doctor's Wife"

Amail Chudy, North Little Rock, "The Doctor in General Practice"

Thomas E. Townsend, Pine Bluff, "The Doctor and Organized Medicine"

Mr. W. F. Rector, President of Arkansas Careers, Inc., "Opportunities in Arkansas"

Tickets will be offered for sale to all members of the Society and their wives at the registration desk in the Marion Hotel on Sunday.

FIRST MEETING

HOUSE OF DELEGATES

Sunday, April 21st, 1963, 3:30 P. M.

Forum Room, Hotel Marion

The first session of the House of Delegates will convene at 3:30 p.m. in the Forum Room of the Hotel Marion on Sunday, April 21st. The order of business will be as follows:

Call to Order
Roll Call of Delegates
Report of Credentials Committee
Introduction of Guests
Adoption of Minutes of 86th Annual Session
Report of the Council
Report of Committees
New Business
Selection of Nominating Committee
Adjournment

FIRST GENERAL SESSION

Monday, April 22nd, 1963, 9:00 A. M.

Lecture Hall, Robinson Auditorium

9:00 a.m. Film: "Diagnosis of Common Congenital Heart Defects"
Visit Exhibits

SCIENTIFIC SESSION

HENRY HOLLENBERG, First Vice President, presiding

9:30 a.m. "Current Concepts in the Recognition and Management of Diabetes Mellitus", George K. Mitchell, Little Rock
10:00 a.m. "The Gangrenous Bite of the Brown Spider in Arkansas", Calvin J. Dillaha, Little Rock
10:30 a.m. INTERMISSION—VISIT EXHIBITS
11:00 a.m. "Troublesome Urologic Problems in the Female", Ian M. Thompson, Professor and Chairman, Division of Urology, University of Missouri School of Medicine, Columbia, Missouri
11:30 a.m. President's Address

Invocation: The Reverend Paul Bumpers, Pulaski Heights Methodist Church, Little Rock

Address: H. King Wade, Jr., President of the Arkansas Medical Society, Hot Springs, Arkansas

SECOND GENERAL SESSION

Monday, April 22nd, 1963, 2:00 P. M.

Lecture Hall, Robinson Auditorium

BERRY L. MOORE, SR., Second Vice President, presiding

- 2:00 p.m. "The Diagnosis and Treatment of Soft Tissue Tumors", Richard Martin, Associate Surgeon, The University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, Texas
- 2:30 p.m. "Medical Aspects of Esophageal Hiatus Hernia", Gordon McHardy, Clinical Professor of Medicine, Louisiana State University Medical School, New Orleans
- 3:00 p.m. INTERMISSION—VISIT EXHIBITS
- 3:15 p.m. "The Treatment of Bronchial Asthma in Children", Sheldon C. Siegel, Children's Medical Group, Los Angeles, California
- 3:45 p.m. "The Role of the Physician Anesthesiologist," M. Digby Leigh, Head of the Division of Anesthesia, Children's Hospital of Los Angeles, Los Angeles, California

Monday Evening, April 22nd, 1963

An Arkansas Medical Society Cocktail Party will be held in the Ballroom of the Marion Hotel on Monday evening, beginning at 6:30 p.m.

FINAL GENERAL SESSION

Tuesday, April 23rd, 1963, 9:00 A. M.

Lecture Hall, Robinson Auditorium

JAMES W. BRANCH, Third Vice President, presiding

- 9:00 a.m. Sydney Margolin, University of Colorado School of Medicine, Denver, Colorado—subject to be announced
- 9:30 a.m. "The Infectious Vaginitides, Diagnosis and Treatment", Herman L. Gardner, Chief, Obstetrics and Gynecology, St. Luke's Episcopal Hospital, Houston, Texas
- 10:00 a.m. "Rib Fractures and Their Complications", Ted F. Leigh, Department of Radiology, Emory University Clinic, Atlanta, Georgia
- 10:30 a.m. INTERMISSION—VISIT EXHIBITS
- 11:00 a.m. "Nasal Injuries, Cartilaginous and Bone", Daniel D. Klaff, St. Louis, Missouri

MEMORIAL SERVICE

Tuesday, April 23rd, 1963, 11:30 A. M.

H. KING WADE, JR., President, presiding

Invocation: Walter O'Neal, Little Rock

Reading of names of deceased members of the Auxiliary by Mrs. T. Duel Brown, Auxiliary Chaplain

Reading of names of deceased members of the Society by Dr. Wade
Memorial Address: Payton Kolb, Little Rock
Music by Mrs. Harold Hawley, Little Rock
Benediction: Walter O'Neal

SPECIALTY SECTION MEETINGS

Tuesday, April 23rd, 1963

(There is no general session scheduled for Tuesday afternoon)

EYE, EAR, NOSE AND THROAT

The E.E.N.T. Section will meet in the Court Room of the Marion Hotel, beginning at 9:00 a.m. on Tuesday, April 23rd. The guest lecturer for the morning session will be Dr. Wesley McKinney of Memphis, who will talk on "Gonioscopy and Goniotomy Surgery". There will be a business meeting and luncheon beginning at 12:00 noon. In the afternoon, Dr. Daniel D. Klaff of St. Louis will discuss "Repair of Septal Perforation".

UROLOGY

The Urology section will meet for luncheon in the West Room of the Marion Hotel. Following the luncheon, there will be a scientific session with Dr. Ian M. Thompson, Professor and Chairman of the Division of Urology, University of Missouri School of Medicine in Columbia, Missouri, as guest lecturer. His subject will be "Recent Concepts in the Management of Genitourinary Disease."

PEDIATRICS

The Section on Pediatrics will meet in the Continental Room of the Marion Hotel for a luncheon beginning at 12:30 p.m. During luncheon there will be a general discussion of allergic reactions to drugs, led by Dr. Sheldon C. Siegel.

Afternoon program:

- 2:00 p.m. "Pre- and Postoperative Care in Children," James L. Dennis, Professor of Pediatrics, University of Arkansas Medical School, Little Rock
- 2:45 p.m. "Evaluation of Urinary Tract Diseases in Children", Betty A. Lowe, Texarkana, Arkansas
- 3:15 p.m. Intermission
- 3:30 p.m. "The Early Discharge and Home Care of Premature Infants", Thomas E. Townsend, Pine Bluff, Arkansas
- 4:00 p.m. "The Use of Steroids and Coricotrophin in the Treatment of Allergic Disorders in Children", Sheldon C. Siegel, Los Angeles, California

ARKANSAS ACADEMY OF GENERAL PRACTICE

The Arkansas Academy of General Practice will meet for lunch in the Junior Ball Room of the Marion Hotel, beginning at 12:30 p.m. Dr. Gordon McHardy of New Orleans will discuss "Current Status of Ulcer Therapy" at the scientific meeting following the luncheon. There will also be case presentations by members of the Academy, with comments by Dr. McHardy.

RADIOLOGY

The Radiology Section will meet in the Assembly Room of the Marion Hotel. The outline of the program is as follows:

12:30 to 1:30 p.m. Luncheon

1:30 to 2:00 p.m. Business meeting, Arkansas Radiological Society

2:00 to 2:30 p.m. "A New Approach to the Barium Enema", Dr. Ted Leigh

2:30 to 2:45 p.m. Discussion of Dr. Leigh's paper

2:45 to 3:00 p.m. Intermission

3:00 to 4:00 p.m. Panel session on Radiology of the Mediastinum. Session moderator will be Dr. Howard Barnhard of the University Medical Center Radiology Department. Dr. Ted Leigh will be a member of the panel. Other panel members will be Dr. Bill Dave Stewart and Dr. A. A. Pringos, both of Little Rock.

ARKANSAS OBSTETRICAL AND GYNECOLOGICAL SOCIETY

The Arkansas Obstetrical and Gynecological Society will meet in the Rendezvous Room of the Marion Hotel with Dr. Robert F. McCrary of Hot Springs, President, presiding.

The program will be as follows:

12:30 p.m. Luncheon and Business meeting

2:00 p.m. "Dystrophic Lesions of the Vulva", Dr. Herman L. Gardner, Houston, Texas

3:00 p.m. "Possible Application of Lymphography in Pelvic Cancer", Dr. Michael Howett, Dallas, Texas

The Arkansas Society of Internal Medicine will meet at 12:30 p.m. in the Continental Private Dining Room of the Hotel Marion for luncheon and a business meeting. A scientific meeting with Dr. George K. Mitchell as speaker will follow the luncheon.

ARKANSAS PSYCHIATRIC SOCIETY

The Arkansas Psychiatric Society will meet at 1:00 p.m. on the 23rd in the East Room of the Marion Hotel. Dr. Sydney G. Margolin, Professor of Psychiatry, University of Colorado, Denver, Colorado, will be guest speaker.

TUESDAY EVENING

April 23, 1963

ANNUAL PRESIDENT'S BANQUET AND DANCE

7:00 P. M., Ballroom, Hotel Marion

H. KING WADE, JR., Society President, presiding

Invocation by Joseph A. Norton, Little Rock

Announcement of Winners of First Three Golf Prizes

Installation of new president—Joe Verser, Harrisburg

FINAL SESSION, HOUSE OF DELEGATES

Wednesday, April 24th, 1963, 10:00 A. M.

Lecture Hall, Robinson Auditorium

Roll Call

Report of Nominating Committee

Election of Officers:

President-elect

First Vice President

Second Vice President

Third Vice President

Treasurer

Secretary

Speaker of the House of Delegates

Vice Speaker of the House of Delegates

Councilors (one from each of the ten districts)

(Councilors whose terms expire are:

- | | |
|--------------------------------|-----------------------------------|
| 1. Eldon Fairley, Osceola | 6. Karlton H. Kemp, Texarkana |
| 2. Paul Gray, Batesville | 7. Jack Kennedy, Arkadelphia |
| 3. Paul Millar, Stuttgart | 8. Bill Dave Stewart, Little Rock |
| 4. T. E. Townsend, Pine Bluff | 9. Stanley Applegate, Springdale |
| 5. George C. Burton, El Dorado | 10. C. C. Long, Ozark) |

Delegate to the American Medical Association House of Delegates

(term of Dr. J. W. Kennedy, eligible for re-election, expires December 31, 1963)

Alternate Delegate to the American Medical Association House of Delegates

(term of Dr. Alfred Kahn, eligible for re-election, expires December 31, 1963)

Report of Reference Committees

Supplementary Report of the Council

Report of Committees

New Business

Selection of Time and Place of 1965 meeting

Adjournment

COUNCIL MEETING

The new Council will convene for a brief reorganizational meeting immediately following adjournment of the Final Session of the House of Delegates.

COMMERCIAL EXHIBITORS

The business firms who purchase exhibit space at our annual session contribute a great deal to the financing as well as to the educational aspects of the meeting. The number of visits to the commercial exhibits are the only criteria by which these companies can judge the value they receive from the investment in booth rental, displays, and employee's time. You will be rewarded for the time you spend visiting the exhibits.

THE STUART COMPANY

A cordial invitation is extended to all members and guests attending this meeting to visit the Stuart Company booth. Specially trained representatives will be in attendance to answer your questions on new products, developed in our modern laboratories, which have particular interest for the medical profession. Products featured are MY-LANTA, STUART PRENATAL AND STUART PRE-NATAL-F, MULVIDREN AND MULVIDREN-F.

JULIUS SCHMID, INC.

An interesting and informative exhibit featuring IM-MOLIN Vaginal Cream-Jel for use without a diaphragm, RAMSES Flexible Cushioned and BENDEX Diaphragms; RAMSES Vaginal Jelly; VAGISEC Liquid and VAGISEC PLUS Jelly and Suppositories for vaginal trichomoniasis therapy; and XXXX (FOUREX) Skin Condoms, RAMSES, SHEIK and SHEIK LUBRICATED Rubber Condoms for the control of trichomonal reinfection.

MEDCO PRODUCTS COMPANY, INC.

The following product will be featured in the Medco booth: MEDCO-SONLATOR, providing a new concept in therapy by combining muscle stimulation and ultra sound simultaneously through a SINGLE Three-Way Sound Applicator. The MEDCO-SONLATOR is a distinct advance in the effectiveness of physical therapy in your office or hospital. A few minutes spent in our booth should prove of value to your practice.

MERCK, SHARP & DOHME

The theme of the Merck, Sharp & Dohme exhibit is "SERVICE TO MEDICINE." One phase features the details of the Merck, Sharp & Dohme Postgraduate Program. Another feature includes information on teaching films for use by the profession, and also, lay films that can be utilized to portray the story of medicine to the lay public. The exhibit is concluded with a display of finger-tip files on selected Merck, Sharp & Dohme products.

U. S. VITAMIN & PHARMACEUTICAL

ARLIDIN — unique vasodilator — vasorelaxant will be on display. Increases blood flow to ischemic areas of brain, eye, inner ear, and the extremities. Arlidin provides sustained relief of pain, ache, spasm, intermittent claudication. Indicated in arteriosclerosis obliterans, thromboangiitis obliterans, diabetic atheromatosis, night leg cramps, ischemic ulcers, Raynaud's syndrome, thrombophlebitis, cold feet, legs and hands. Product brochures and other pertinent literature will be available.

ARKANSAS X-RAY & SURGICAL, INC.

We will show the following: The new "Bird" Mark "7" positive phase portable respirator complete with compressor in carrying case; the new "Kalvaray" film duplicator, dry process, no liquids or vapors required, films up to 14"x17"; the new "Mattern" Electra 100 M.A. at 100 P.K.V. X-ray unit with rotating anode tube, recipromatic bucky, videx cone, lead shield, electric automatic tube stand, table and control complete with a minimal space requirement; the new "Theramatic for 1963" the most advanced design in high frequency pulse therapy with multi jointed arm for quick easy positioning, economy priced; and the new "Ritter 75 Universal Table," for your ease and comfort as well as your patients, with the new bantam bovie. The new 999-C Autoclave and the new No. 8 examining light.

HERBERT COX CORRECT SHOES

Herbert Cox Shoes, Inc., has been providing reliable prescription service for all types of footwear in Little Rock for more than a decade. The firm will present an informative exhibit of medically pertinent technological details of the Arch Feature line of Child Life shoes. An executive staff member of Herbert Cox Shoes will be in attendance.

GEIGY PHARMACEUTICALS

Geigy Pharmaceuticals cordially invites members and guests of the Society to visit its exhibit. The exhibit features important new therapeutic developments in the management of cardiovascular disease, as well as current concepts in the control of inflammation; hypertension and edema; depression; obesity, and other disorders, which may be discussed with representatives in attendance.

PLOUGH LABORATORIES

The Plough Laboratories display includes an "in vivo" demonstration of the unique pharmacological activity of SILAIN, a gastrointestinal defrothican that mobilizes entrapped gas; and "in vitro" demonstrations of VACUETTS, the rectal suppository that generates CO₂ to activate normal peristaltic and defecation reflexes.

ABBOTT LABORATORIES

Abbott Laboratories invites you to visit our exhibit. Our representatives will be happy to answer any questions you may have concerning our leading products and new developments.

MEAD JOHNSON AND COMPANY

The Mead Johnson Laboratories' exhibit has been arranged to give you the optimum in quick service and product information. To make your visit productive, specially trained representatives will be on duty to tell you about their products.

MARION LABORATORIES

PAVABID: Pavabid Plateau CAPS utilize papaverine hydrochloride, 150 mg. in a unique new timed release dosage form that provides the smooth muscle vascular relaxation quality of PAVABID in a b.i.d. dosage that offers 24 hour utilization of this drug's activity. The presentation of papaverine hydrochloride in a Plateau CAP dosage form may be utilized effectively for the relief of cerebral and peripheral ischemia associated with vascular spasms and myocardial ischemia complicated by arrhythmias.

INTERNATIONAL LATEX CORPORATION

The revolutionary Playtex Nurser, acclaimed as the nearest approach to breast feeding, features a pre-sterilized "inner liner" which is used once then thrown away, and a "natural action" nipple. As baby feeds, outside air pressure contracts this pliable inner liner. No vacuum forms in the bottle—no collapsing of the nipple to cause exerted sucking and air swallowing. The soft, broad, natural shape of the nipple permits proper jaw-teeth development. The Playtex Nurser has been used in over 10 million feedings in hospitals and homes.

PFIZER LABORATORIES

Professional Service Representatives from Pfizer Laboratories will be pleased to have you in attendance at their booth to discuss the latest products of Pfizer research.

ST. PAUL INSURANCE COMPANIES

Your Society has selected and endorsed the St. Paul Insurance Companies as the approved carrier for Professional Liability Insurance. Your *Guidepost* for purchasing this form of coverage can be found at booth number 27. The broad coverage afforded by our policy, strong carrier stability, vast experience in specialized service in the handling of prevention of losses is your best investment in "peace of mind." For more information come and visit with us!

G. D. SEARLE & COMPANY

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle Products of Research.

RATHER, BEYER & HARPER

Rather, Beyer & Harper are administrators of group plans of disability insurance and professional overhead expense insurance which have been officially endorsed by the State Society. A member of the agency will be present with brochures concerning the insurance plans and will have data on those people presently insured available for reference. He will be happy to discuss the programs with anyone who is not insured or to discuss any insurance problem that a member may have.

ARKANSAS MEDICAL AND HOSPITAL SERVICE

Our booth is for your convenience and we welcome your visit. Blue Cross-Blue Shield representatives are always ready to help solve any case problem or answer your questions. Our association with the medical profession has been largely responsible for our growth in membership which now totals 301,000—an achievement of which we should all be proud.

RIKER LABORATORIES

Representatives of Riker Laboratories, Inc. will be glad to supply you with complete information concerning our products which are available to the medical profession. Please feel free to request answers to any questions you may have. We will be looking forward to your visiting our booth.

J. A. MAJORS COMPANY

The latest publications of the W. B. Saunders Company will be on display for your examination: Bockus—GASTROENTEROLOGY, 2ND EDITION; 1963 CURRENT THERAPY; Parsons'—GYNECOLOGY; O'Donoghue—ATHLETIC INJURIES; Todd & Sanford—CLINICAL LABORATORY DIAGNOSIS, '61 EDITION; Rogers—ENDOCRINOLOGY and many others.

WARNER-CHILCOTT LABORATORIES

The following products will be featured at the Warner-Chilcott booth: *Coly-Mycin Injectable*—the first antibiotic to combine exceptional safety at recommended dosage with primarily bactericidal action and specificity for most gram-negative pathogens—particularly *Pseudomonas aeruginosa* and *E. coli* (but not *Proteus*). *Papase*—the first anti-inflammatory enzyme of plant origin with clinical efficacy consistently demonstrated in double-blind studies, speeds up the normal physiologic processes of healing whenever inflammation and edema are part of the clinical picture. The unique trioral tablet may be chewed, swallowed or taken buccally with equal therapeutic effectiveness.

ELI LILLY AND COMPANY

You are cordially invited to visit the Lilly exhibit located in space number 39. The Lilly sales people in attendance welcome your questions about Lilly products and recent therapeutic developments.

THE COCA-COLA COMPANY

Ice-cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Company of Arkansas, and The Coca-Cola Company.

WINTHROP LABORATORIES

Winthrop Laboratories cordially invites you to visit their booth at which we are planning to feature the following products: *Winstrol*, the new complete "physiotonic" for the underweight, the weak and debilitated. Builds body tissue, confidence and alertness. Winstrol is highly active orally, simple to administer and suitable for prolonged therapy in most cases. *Trancogesic*, well tolerated analgesic, tranquilizer and muscle relaxant that is particularly effective for tension headaches, low back pain and arthritic pain.

A. H. ROBINS COMPANY, INC.

Old friends are best, and the reliable 10-to-12 hour sedative and antispasmodic effects of DONNATAL EXTENTABS are well established by years of wide acceptance. For the patient's complaint of "nervous indigestion," the Donnatal components are combined in DONNAZYME with the natural digestive enzymes of ENTOZYME. Also available: ROBINUL (anticholinergic), ROBINUL-PH (Robinul with phenobarbital), and SKELAXIN and SKELAXIN-800 (skeletal muscle relaxant).

DABBS-SULLIVAN COMPANY

Mr. Melvin Spear, Account Executive with Dabbs Sullivan Company, Inc., will exhibit pamphlets and brochures regarding investment securities. Included in this exhibits are Mutual Fund Prospectus and associated literature. Mr. Spear is available to answer any of your questions.

CIBA PHARMACEUTICAL COMPANY

DIANABOL is a low-cost anabolic agent with an exceptionally low incidence of side reactions. It promotes weight gain in the form of lean tissue, improves appetite, increases strength and renews vigor in underweight, devitalized patients. On the basis of experimental and clinical results, DIANABOL can be recommended as an effective anabolic agent to counteract various catabolic states.

E. R. SQUIBB & SONS

E. R. Squibb & Sons has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of our diligent research are available to the Medical Profession in new products or improvements in products already marketed. At booth No. 48, we will be pleased to present up-to-date information on these advances for your consideration.

SANDOZ PHARMACEUTICALS

Sandoz Pharmaceuticals cordially invites you to visit our display at booth No. 49, where we are featuring Sansert, Mellaril, Cafergot P-B and Bellergal. Any of our representatives in attendance will gladly answer questions about these and other Sandoz products.

ROCHE LABORATORIES

The following product will be featured in the Roche booth: LIBRIUM—a therapeutic agent for superior, safer, faster control of nervousness, anxiety, tension and other common emotional disturbances without the dulling effect or depressant action of the tranquilizers.

DOME CHEMICALS, INC.

Dome Chemicals, Incorporated, world leader in dermatologicals, will feature dermatological specialties that are of general interest to the members of the Arkansas Medical Society. Topical steroid products as CORT-DOME, NEO-CORT-DOME, DOMEFORM-HC, LIDA-MANTLE HC, and COR-TAR-QUIN, will be presented. Our representatives will be available to discuss with you several products recently released from the research laboratories of DOME CHEMICALS.

SMITH, MILLER & PATCH

LIPOTRIAD—a potent combination of lipotropes and oxytropic B-complex factors in liquid or capsules. LIPO-TRIAD is a means of controlled therapeutic nutrition for maintaining vitality and as a protection against degenera-

tive processes. VITRON-C—a most effective oral hematinic. VITRON-C, a combination of ferrous fumarate and ascorbic acid has been clinically proven to be tolerated by patients with gastro-intestinal irritability or ulcerative disease. High toleration plus effectiveness makes VITRON-C the choice in treating iron deficiency anemias. VASOCIDIN—a new topical ophthalmic solution for the treatment of ocular infections, conjunctivitis and blepharitis. An antimicrobial combined with a steroid and decongestant, VASOCIDIN contains SMP-68, a unique vehicle that enhances dispersion and penetration of the active ingredients. LIPOFLAVONOID—a new nutritional approach to certain types of neurosensory nerve deafness and vertigo usually associated with Meniere's disease.

PARKE, DAVIS & COMPANY

Medical service members of our staff will be in attendance at our booth to discuss important Parke-Davis specialties which will be on display.

J. B. LIPPINCOTT COMPANY

J. B. Lippincott Company presents, for your approval, a display of professional books and journals geared to the latest and most important trends in current medicine and surgery. These publications, written and edited by men active in clinical fields and teaching, are a continuation of more than 150 years of traditionally significant publishing.

FIRST TEXAS PHARMACEUTICALS, INC.

We will exhibit several of our new products. Our booth will be staffed with personnel fully qualified to discuss the various items on exhibition. We will be pleased to have you drop by our booth.

WM. T. STOVER COMPANY

The Wm. T. Stover Co., celebrating its 23rd year of operation in the surgical business in Arkansas, in the same location for 16 years, will be extremely happy to visit with you at your annual meeting. There will be many new items, too numerous to list, on display from our Surgical, X-Ray and Laboratory Departments, as well as many old items, such as Bill Stover, Massie, Fetzek, Love, Robertson, Boedeker, Deglow, Holmes, Solinger and Rose. And we mean "old"!!! Their experience in their specialty trades totals 227 years.

TEX-O-CON OPTICS, INC.

The Tex-O-Con exhibit will consist primarily of a display of the various types of contact lenses presently available, as well as instruments and equipment used in finishing and inspecting the lenses. Special emphasis will be placed on the new Controlled Curve-Size-Zone Aphakic lenses manufactured by our firm.

KAY SURGICAL COMPANY, INC.

GREAT BOOKS WITH THE SYNTOPICON

Annual Committee Reports

COMMITTEE ON PUBLIC HEALTH

Ben N. Saltzman, Chairman

The Committee on Public Health has, as in the past, confined its activities to those of the Committee on Rural Health. The various sub-committee reports have been submitted.

SUB-COMMITTEE ON RURAL HEALTH

Ben N. Saltzman, Chairman

The Committee this year has centered its activities around the Rural Community Improvement Program in Arkansas. The Committee has representation on the R. C. I. Board in the person of its chairman. This year, health will play a more important part in the R. C. I. Program. Five plaques will again be awarded to Regional winners in Health Projects. The Arkansas Medical Society has been given considerable praise for its interest in Rural Health and Rural Development. This year, plans are being made for the holding of a Regional Rural Health Conference in Hot Springs under the leadership of the Council on Rural Health of the American Medical Association. Your chairman has recently been re-elected a member of that council. This should be one of the largest meetings of this type to be held in the State of Arkansas.

The Committee on Rural Health has held two meetings this past year dedicated to strengthening the Health Program in the R. C. I. Contest. The committee has discussed plans for holding Regional State Conferences in the future.

COMMITTEE ON MEDICAL EDUCATION

C. C. Long, Chairman

During the past year the Education committee has made a study of the distribution of physicians in the state of Arkansas. The committee's object in this study was to determine the number of communities in the state that did not have physicians that could offer a physician a reasonable chance to be satisfied. It was felt that this information would be of advantage to the Medical School, the

Medical Society and the State Legislature, in determining how well the medical needs were being filled. After this survey was completed it was found that there was only one town in the state of over 1,000 population that did not have a resident physician within less than five miles.

A complete report of the facts and figures obtained by this study will be offered for general publication in the near future.

The source of the information and the compiling of the data for this study was done by Mr. Paul Schaefer and his staff at the state office.

SUB-COMMITTEE ON MATERNAL & CHILD WELFARE

T. E. Townsend, Chairman

The Sub-Committee on Maternal and Child Welfare reports no activity during the year.

SUB-COMMITTEE ON POSTGRADUATE EDUCATION

Willis E. Brawn, Chairman

During the past decade there have been many efforts to promote postgraduate education within the State for physicians in practice in the State of Arkansas. The State Medical Society has had a Committee designed to augment and facilitate this and they have cooperated with the various members of the Faculty and a special Committee of the Faculty of the Medical Center for this purpose.

During the fiscal year ending July, 1962, there were 228 physicians registered in postgraduate courses in the Medical Center and during the first six months of the 1962-63 calendar year there were 101 physicians registered.

Your Committee is happy to report continuing cooperative effort between the Medical School and the Academy of General Practice and the Arkansas Medical Society for this purpose.

POSTGRADUATE PROGRAMS, 1961-62

Summary of Participation

COURSE	PARTICIPANTS	CREDIT HOURS	TOTAL CREDIT HOURS EARNED
"Basic Clinical Electrocardiography" September 20 and 21, 1961	11	31	341
"Neurological Conditions Encountered in General Practice" November 16, 1961	18	4½	81
"Medical Problems in Obstetrics-Gynecology" January 18, 1962	28	6	168
"Special Problems in Pediatrics" February 7 and 8, 1962	43	8	344
"Conference on Arthritis and Rheumatism" March 2, 1962	39	7	273
"Dermatology for the General Practitioner" March 22, 1962	19	6	114
"Practical Psychiatry for the Non-Psychiatrist" May 24, 1962	6 (full) 6 (half)	6 3	36 18
TOTAL	170	71½	687

COURSE	PARTICIPANTS	CREDIT HOURS	TOTAL CREDIT HOURS EARNED
Clinical Cardiology			
November 9, 1961	14	3	42
December 14, 1961	13	3	39
January 11, 1962	5	3	15
February 8, 1962	9	3	27
March 8, 1962	6	3	18
April 12, 1962	6	3	18
May 10, 1962	5	3	15
Total for Cardiology	58	21	174
COMBINED TOTAL FOR 1961-62	228	92½	861
Total ECG Registrations 1958-59	19		
Total ECG Registrations 1959-60	45		
Total ECG Registrations 1961-62	11		
TOTAL ECG TO DATE	75		

POSTGRADUATE PROGRAMS, 1962-63

Summary of Participation

COURSE	PARTICIPANTS	CREDIT HOURS	TOTAL CREDIT HOURS EARNED
"Pediatric Problems in General Practice" December 6, 1962	33	6	198
"Basic Clinical Electrocardiography" January 9 and 10, 1963	15		
"Current Topics in Obstetrics-Gynecology" January 17, 1963	37	7	259
"Clinical Cardiology" November 29, 1962	11	3	33
December 20, 1962	5	3	15
	101		

COMMITTEE ON HOSPITALS

Amiel Chudy, Chairman

Discussion of current problems effecting the physician and his hospital was first most in our mind.

New legislation and its ramifications was dealt with at great length.

It is hoped that our State Meeting and the State Meeting of the Hospital Administrator will soon be set up to allow at least one day of overlap, so we can have a conjoint meeting at least yearly. This will be investigated thoroughly and it is hoped that this first meeting may be possible in 1964.

Sincere appreciation of the members of my Committee.

SUB-COMMITTEE ON LIAISON WITH
BLUES CROSS-BLUE SHIELD

A. S. Kaenig, Chairman

Pursuant to the action of the House of Delegates of the Arkansas Medical Society of last year, Arkansas Medical and Hospital Service, Inc., has issued the Comprehensive Senior Citizen's Contract which carries with it the service benefits agreed upon by the delegates of the Arkansas Medical Society. As of the first of the year there have been three hundred subscribers to whom this coverage has been issued and a great majority of the physicians in the state have agreed to participate in the service benefit program under this certificate.

At the meeting of the Board of Trustees in September 1962 the Board authorized the issuance of a diagnostic rider

which will provide benefits up to \$100.00 per year maximum for out-patient diagnostic services in clinical pathology and radiology. This coverage will be made available to group subscribers and will soon be offered for sale. This type of coverage will provide a benefit which has been very much needed in Arkansas and will assist to some extent in diminishing the utilization of hospitals for diagnostic services.

The Committee wishes to report continued good relations between the officers of the Arkansas Medical Society and the Trustees of the Arkansas Blue Cross-Blue Shield Plan.

COMMITTEE ON PUBLIC RELATIONS

Jahn McCullaugh Smith, Chairman

The work done by the Public Relations Committee has consisted for the most part of attempts to emphasize to the local county societies the importance of the Sabin oral vaccine campaign in improving the image of the physician and thereby creating better public relations between doctor and patient. In this regard, attention has been called to the favorable response to the Pulaski County Oral Sabin Program.

In addition, the Public Relations aspect of the visit of the president-elect of the American Medical Association has been called to the attention of all county society public relations chairmen. The doctors have been urged to encourage all lay people who can to attend Dr. Annis' lecture on February 11, 1963, at the Medical Center in Little Rock, Arkansas. The activity of the State Public Relations Committee has centered around these two projects.

SUB-COMMITTEE ON TUBERCULOSIS

Sanford C. Manroe, Chairman

The Sub-Committee on Tuberculosis met on February 2, 1963 at the Medical Center in Little Rock. Those in attendance were: Chairman, Dr. S. C. Monroe; members, Dr. Richard V. Ebert and Dr. Harley C. Darnell. Absent were Dr. William O. Arnold and Dr. Ben Saltzman.

The Committee had as its guests Dr. Jones, Medical Director of the State Tuberculosis Sanatorium at Booneville, Dr. John T. Herron, State Health Officer, and the following from the Division of Tuberculosis Control, State Health Department, Dr. Paul Reagan, Dr. Eugene Potts and Dr. Don Miller.

The following recommendations are made with majority approval of the Committee:

1. Overall acceptance of the Program of Tuberculosis Control as presented by the Division of Tuberculosis of the State Health Department. This includes the following specific functions:
 - a. Thorough review of the case record load on Central Registry with statistical analyses for up to date reporting and attention to individual as well as area problems.
 - b. The use of the Mobile Chest X-ray Units in selected areas and in situations in keeping with the recommendations of the U. S. Public Health Service.
 - c. Selected mass skin testing only, in keeping with Public Health practices with a critical review of its values in case detection.
2. With rare exceptions and only under unusual circumstances as well as individual consideration, all active open cavitory cases should be admitted to the Sanatoria for initial period of treatment.

Discussion of the committee indicates the need for all the physicians to be reminded of the necessity for prompt, regular and accurate reporting for all cases.

SUB-COMMITTEE ON MENTAL HEALTH

W. O. Young, Chairman

During the past year there has been a marked increase in the awareness of and concern for the problems of mental illness. The leaders of the American Medical Association have declared that mental illness is America's most pressing and complex health problem. The American Medical Association has taken the lead in initiating interest and attention to this problem by holding the first nationwide Congress on Mental Illness and Mental Health in Chicago in October, 1962. Members of our Committee attended this congress and have also attended the regional meeting for Leadership in Mental Health in Dallas. Members of our committee are also attempting to work with various lay organizations on a state wide level.

We urge that all physicians become leaders in mental health activities in their community. We feel that every physician, regardless of his type of practice, should participate in mental health activities on two levels, first, as a man of science and, secondly, as a citizen.

The State Hospital, the Medical Center, and the Veterans Administration Hospitals have done much to expand and to improve their training program for psychiatrists during the past year. With this, it is obvious that the num-

ber of men trained in psychiatry will never be large enough to care for all the mental and emotional illnesses that effect the people of our state. We are convinced that all of the doctors of the state must work together to control this health problem.

Closer communication between physicians who are trained in psychiatry and physicians in other areas of the practice of medicine must be increased and intensified to stimulate an interchange of information and ideas. All physicians should endeavor to increase their knowledge of interpersonal relationships and of psychiatric techniques. For men in practice, this may be done by seminars sponsored by the Medical School or other appropriate agencies, by County Society programs, by study groups and by increased emphasis on these problems of mental health in the State Society programs. This knowledge should be given greater emphasis in undergraduate teaching and integrated into the teaching of all fields of medicine.

There are various lay groups interested in and working on this problem. Most prominent in our state are the Association for Mental Health and The Association for the Mentally Retarded. All physicians are urged to work with these lay groups, not only as citizens and leaders in their communities, but as physicians who can give valuable assistance and direction to the activities of these groups.

We urge the establishment of psychiatric sections in general hospitals, mental health clinics, child guidance clinics, family counselling services, follow up clinics and rehabilitation centers, with trained and competent staffs. We feel that this can only be accomplished with the help and guidance of the medical profession in the local communities.

We urge the Arkansas Medical Society, through the Council, to study various methods of coordinating the mental health activities and mental health services in the state, and to make recommendations to the appropriate departments of the state government.

The Society should encourage and support the development of new treatment facilities now under way in our state institutions devoted to the care of mentally handicapped and mentally ill.

In view of the importance of the problems of mental illness and mental health, we suggest that the Subcommittee on Mental Health be made a committee of the Arkansas Medical Society and, if it seems wise to the Society, be enlarged to give the committee wider representation in its membership.

SUB-COMMITTEE ON LIAISON WITH THE STATE BOARD OF HEALTH

C. Lewis Hyatt, Chairman

1. The State Health Department conferred with the chairman of the Sub-Committee regarding present day concepts in tuberculosis control and the establishment of chest clinics in various sections of the state. The establishment of the diagnostic, consultation and evaluation clinics is being accomplished upon the request of local medical groups.
2. The chairman along with the Council of the State Medical Society was approached and informed of the department's plans to establish a chronic disease program during 1962. This program is confined to the chron-

ically ill and the disabled aged who are at home and under the care of a private physician. The program offers home nursing services by public health nurses under the direction and supervision of their private physician. No one is admitted to the service for care unless the patient's physician requests it and furnishes the nurse with written orders. At present this program has been established in ten (10) counties on the request of the local medical society. The physician and patient are very appreciative of the program and services. This is proving to be an excellent patient holding technique for the physician.

3. Upon the recommendation of the chairman of the Sub-Committee the State Health Officer requested the Council of the State Medical Society to appoint a committee of radiologists to assist the department in drawing up Rules and Regulations for Control of Sources of Ionizing Radiation. Through the efforts of the committee and the State Health Department the rules and regulations were completed and became effective on January 1, 1963.

I would like to call the attention of members of this Society to the most efficient work of the State Health Officer, Dr. J. T. Herron, and his well qualified staff. The work they do on their budget is amazing. Since more and more jobs are being placed on the State Board of Health, I strongly recommend that we as members of the Arkansas Medical Society go on record as favoring an increased budget.

POLIO ADVISORY SUB-COMMITTEE

Roger Bost, Chairman

In July, 1962, the Polio Advisory Sub-Committee developed a plan for a state-wide mass immunization program using oral Sabin polio vaccine. This plan was proposed to the Council of the Arkansas Medical Society on Sunday, August 5th, 1962, and adopted unanimously.

According to the plan, the program would include all 75 counties and would start on September 30th, 1962, with the feeding of Type I vaccine. Each county medical society was contacted and requested to consider this program. With very few exceptions, all counties contacted approved the program. The Sub-Committee thereupon proceeded with the development of the plans for the program. After several meetings and considerable work, the committee completed the details of the plan and proceeded to assist all of the counties with their programs. The State was divided into 6 sections—one section for each member of the committee—and most of the counties in the State were visited by a member of the committee. A mass publicity campaign was planned, to be initiated by a Kick-Off Dinner in Little Rock; however, shortly before this was to have taken place, unfavorable publicity concerning the vaccine appeared in the press and other news media and, after due consideration by the committee and others in the State Medical Society, it was decided that the mass program should be postponed temporarily until the public's confidence in the vaccine was restored.

In December, 1962, the United States Public Health Service reaffirmed its policy of recommending that communities proceed with mass immunization programs using

Sabin vaccine. The committee appeared before the Council and House of Delegates of the Arkansas Medical Society with a plan to proceed with the mass program and both of these bodies gave their approval.

During the interval between September and December, several counties in the State had proceeded with their immunization plans on an individual basis and a few of the counties expressed a desire to postpone still longer their own programs. Due to these and other developments, the committee decided that it would be advisable to give up the state-wide program in favor of county and area programs over the State. Since that time, the members of the committee have been assisting numerous county and area programs. A number of successful programs have already been started.

The committee recommends very strongly that all counties in the State have a mass immunization program before the beginning of the 1963 polio season.

SUB-COMMITTEE ON LIAISON WITH THE

AUXILIARY

Frank Padberg, Chairman

There have been no problems which have required a committee meeting with reference to the function of the Liaison between the Medical Auxiliary and the Arkansas Medical Society.

ADVISORY COMMITTEE TO THE MEDICAL

ASSISTANTS SOCIETY

Kenneth R. Duzan, Chairman

The Arkansas State Medical Assistants Society now has a total membership of 200. There are ten Component Societies with the addition of Johnson County during the past year.

The educational program sponsored jointly by the Arkansas Medical Society, the Medical Assistants Society and the Extension Department of the University of Arkansas is progressing and several of the County Societies have completed courses in Medical Terminology and Anatomy and Physiology. Members of the Pulaski County Society have also completed courses in Human Relations and Personal Adjustment and Law in Medicine. These courses are available not only to medical assistants but to anyone interested in the medical field.

An educational fund has been established during the past year in the name of Katherine Spraggins. Although the funds at present are not sufficient to lend, the project is in the making.

The Pulaski County Medical Assistants Society has sponsored two student nurses in their education at St. Vincent's Hospital. They are presently both senior students.

The Bulletin of the state society, edited by Mrs. Bettye De Pierre, won third place in the National Bulletin Contest at the convention of the American Association of Medical Assistants held in Detroit, Michigan, in October, 1962. The Bulletin was in competition with the publications of some states with memberships totaling 1500 or more.

House of Delegates meetings have been held twice with excellent attendance and one or more members of the

Advisory Committee present at each meeting.

At the House of Delegates Meeting held in Little Rock, January 20, 1963. Mrs. Frances Reibe, a past president of the society, was chosen to have her name submitted to the National Society for nomination as recording secretary of the American Association of Medical Assistants.

The annual convention of the society will be held in Pine Bluff, at the Holiday Inn, on May 4-5, 1963. The tentative schedule promises a very interesting and educational program.

The society has given their full cooperation to the Arkansas Medical Society during the past year and although no specific matters came to the attention of the members of the Advisory Board, we were asked several times for advice and counsel.

COMMITTEE ON INSURANCE

Thomas D. Honeycutt, Chairman

The area of activity of your Insurance Committee during the past year has been in the following three fields:

- (1) Group Disability Income and Group Practice Overhead Insurance Programs
- (2) Group Life Insurance Program
- (3) Group Professional Liability Insurance Program

The *Group Disability Insurance Program* of the Arkansas Medical Society, which is administered by the Rather and Beyers Insurance Company of Little Rock, has been in effect for many years and the following experience was encountered in 1962:

Number of members insured	307
Number of claims paid in 1962	93
Total of premiums collected in 1962	\$51,769.36
Total of claims paid in 1962	31,476.00

During the year, 15 new applicants were enrolled from the Arkansas Medical Society and 2 members were dropped because of attaining the age of 70; also, 2 insured members died during 1962.

Group Practice Overhead Insurance Program

Number of members insured	80
Number of claims paid in 1962	2
Total of premiums collected in 1962	\$10,708.32
Total of claims paid in 1962	3,146.67

During the year, there were 8 new applicants for this type coverage and no one dropped their insurance during the year. One member, who was insured under this policy, died during the year.

The *Group Life Insurance*, underwritten by Northwestern National Life Insurance Company, is administered by Mr. Meyer Marks, local agent, Little Rock. The group will celebrate its 4th anniversary in August of 1963. The company has announced that a dividend will be paid as of August 1, 1963, amounting to approximately 5.67%. This will be subtracted from the premium due in August. An additional \$10,000.00 of group term life insurance will be made available to all members now having a policy with Northwestern National on the same basis as the original \$10,000.00 that was offered. The enrollment dates for this additional \$10,000.00 of insurance will be from June 1, 1963 to August 1, 1963. Also, a family rider program will be inaugurated allowing a participant in the group life insurance program to add members of his family to his

life insurance certificate at a very nominal cost. This will provide coverage of \$2,500.00 for a wife and \$1,000.00 for each child. Negotiations are under way with the Company in an attempt to open up an enrollment for those members of the Arkansas Medical Society who did not join the initial program.

During 1962, four claims for a total of \$40,000.00 were paid as a result of death from natural causes. At the present time there is approximately \$5,000,000.00 of insurance in force on 135 members participating. During the year 6 policies lapsed: 4 from members who moved from the state and are no longer members of the Arkansas Medical Society and 2 from members still in good standing with the Arkansas Medical Society.

Group Professional Liability Insurance Program

This program, which has been under study by the Insurance Committee for one year, has been given approval by the Arkansas Medical Society and the mechanics of implementation of this program have been worked out. The St. Paul Insurance Company, Mr. Jack Byers, State Agent, Little Rock, is the administrator of this program. Since the inauguration of this group in August, 1962, there have been 20 new policies issued, with 33 renewals, or a total of 53 doctors within the program. As doctors who had previously been insured by the St. Paul Insurance Company had expirations of their usual professional liability insurance, they will be given an opportunity to join this group (for purposes of statistics they have been held out of the group; however, in effect there is no essential difference in having insurance with St. Paul on an individual basis or a group basis, as this program is currently set up.) Members should be made aware that the more people who participate in the group professional liability insurance the better the experience of the group will be, since the risk of claims are spread thinner thereby giving a better experience ratio.

At the present time, no new insurance programs are under study by this Committee. Since the Jenkins-Keogh legislation has been made Law, the possibility of the Society entering into this type retirement income program has been broached. Some portions of the Jenkins-Keogh type legislation will involve annuity type insurance; however, at the present time the council of the Arkansas Medical Society has not directed your Insurance Committee to study any of these type programs on a group basis.

COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION

Guy R. Farris, Chairman

The following is a report of the Committee on Arrangements for the Annual Session of the Arkansas Medical Society for 1963 and the tentative program for the state meeting.

FIRST GENERAL SESSION Monday, April 22, 1963

- 9:00 a.m. Film: "Diagnosis of Common Congenital Heart Defects"
- 9:30 a.m. George Mitchell, M.D., Little Rock, Arkansas: "Current Concepts in the Recognition and Management of Diabetes Mellitus."
- 10:00 a.m. Calvin J. Dillaha, M.D., Little Rock, Arkansas:

"The Gangrenous Bite of the Brown Spider in Arkansas."

10:30 a.m. Visit exhibits.

11:00 a.m. Ian M. Thompson, M.D., Department of Surgery, University of Missouri School of Medicine, Columbia, Missouri:

"Troublesome Urologic Problems in the Female."

11:30 a.m. Invocation—Reverend Paul Bumpers, Pulaski Heights Methodist Church, Little Rock, Arkansas.

President's Address—H. King Wade, M.D., Hot Springs, Arkansas

SECOND GENERAL SESSION

Monday, April 22, 1963

2:00 p.m. Richard G. Martin, M.D., M. D. Anderson Hospital and Tumor Institute, Houston, Texas: "The Diagnosis and Treatment of Soft Tissue Tumors."

2:30 p.m. G. Gordon McHardy, M.D., Brown-McHardy Clinic, New Orleans, Louisiana: "Medical Aspects of Esophageal Hiatus Hernia."

3:00 p.m. Intermission—Visit exhibits.

3:15 p.m. Sheldon C Siegel, M.D., Children's Medical Group, Los Angeles, California: "The Treatment of Bronchial Asthma in Children."

3:45 p.m. M. Digby Leigh, M.D., Children's Hospital of Los Angeles, Los Angeles, California: "The Role of the Physician Anesthesiologist."

The afternoon program will be concluded with this paper. There is a cocktail party planned on Monday evening from 6:30 to 7:30 at the Marion.

FINAL GENERAL SESSION

Tuesday, April 23, 1963

9:00 a.m. Sydney G. Margolin, M.D., University of Colorado, Denver, Colorado
Subject to be announced

9:30 a.m. Herman L. Gardner, M.D., Women's Medical Building, Houston, Texas: "The Infectious Vaginitides, Diagnosis and Treatment."

10:00 a.m. Ted F. Leigh, M.D., Department of Radiology, Emory University, Atlanta, Georgia: "Rib Fractures and Their Complications."

10:30 a.m. Intermission—Visit exhibits.

11:00 a.m. Daniel D. Klaff, M.D., 4511 Forrest Park Boule-

vard, St. Louis, Missouri:

"Nasal Injuries, Cartilaginous and Bone."

11:30 a.m. Memorial Service—Peyton Kolb, M. D., Memorial address.

Tuesday at noon the various sections will meet and their individual programs will be held on Tuesday afternoon.

Tuesday night there will be the installation of officers preceded by a banquet in the ballroom of the Marion and followed by a dance from 9:00 to 12:00.

COMMITTEE ON AGING

James M. Kolb, Chairman

There has not been an active program this year sponsored by the committee, but due to the involvement of all the members of the Arkansas Medical Society, this activity has been carried on by the Council of the Arkansas Medical Society. It has dealt mostly with the Kerr-Mills Bill and its implementation by the Welfare Department.

We have recommended to all the members of the Arkansas Medical Society that they participate in the Kerr-Mills Program.

COMMITTEE ON TRAFFIC SAFETY

E. Frank Reed, Chairman

The Committee on Traffic Safety, on 11-12-62, was very enthusiastic in making a recommendation to the Legislative Committee 11-18-62 that some type of Board of Review might be set up according to the suggestion of Capt. Bill Miller of the Arkansas State Police.

The Committee is also on record as approving the use of seat belts in our vehicles.

Other than these items, the Committee on Traffic Safety has been inactive.

LIAISON COMMITTEE WITH VOCATIONAL REHABILITATION

Robert H. Atkinson, Chairman

Plans were made and all committee members notified that a luncheon meeting would be held at the Hot Springs Rehabilitation Center on Sunday, January 27th. Unfortunately the weather was impossible and due to the road conditions the meeting was cancelled. We now plan to meet on March 3rd. Both the Rehabilitation Personnel and the Physicians are very enthusiastic and we all feel that this committee will be a very active and constructive one.

I will keep you informed of all actions taken by this committee.

BUDGET COMMITTEE

W. R. Brooksher, Chairman

The following budget approved by the Council is respectfully submitted.

1963 BUDGET

INCOME

ITEM	AMOUNT BUDGETED	COMMENT
Membership Dues	\$ 46,800.00	1170 × \$5 = \$52,650; less \$5,850 for MEFFA
Journal Advertising	28,000.00	10% national rate increase effective January 1, 1963
Booth Income	5,600.00	
Annual Session Income	4,580.00	

ARKANSAS MEDICAL SOCIETY MEETING, APRIL 21-APRIL 24, 1963

AMA Reimbursement	450.00	Reflects anticipated increase in costs rather than greater number of claims
Income from Medicare	21,500.00	
Miscellaneous and Rosters	400.00	
Interest on Bonds	2,400.00	
Retirement	198.00	

	\$109,928.00	

EXPENSES

		AMOUNT BUDGETED	COMMENTS
Salaries—			
Medicare	\$11,432.00		
Journal	8,219.00		
AMS	17,209.00	\$ 36,860.00	Includes Christmas bonus
Travel and Convention		7,200.00	Based on 1962 travel—no allowance for delegations to Washington
Taxes			
Medicare	350.00		
AMS	475.00	825.00	Increase ¼% Social Security
Retirement Fund			
Medicare	670.00		
AMS	2,328.00	2,998.00	
Stationery and Printing			
Medicare	350.00		
AMS	900.00	1,250.00	
Office Supplies and Expense			
Medicare	2,500.00		Includes \$1,679 IBM work
AMS	1,400.00	3,900.00	
Telephone and Telegraph			
Medicare	450.00		Telegraph \$104, Telephone \$320—
AMS	1,800.00	2,250.00	1962 Polio Campaign
Rent			
Medicare	1,030.00		
AMS	1,106.00	2,136.00	
Postage			
Medicare	875.00		\$166 added for postal rate increase
AMS	3,370.00	4,245.00	\$670 added for postal rate increase
Insurance and Bonds			
Medicare	150.00		
AMS	475.00	625.00	
Auditing			
Medicare	500.00		
AMS	275.00	775.00	
Council Expense		400.00	
Journal Printing and Expense		25,100.00	Includes Society car expense
Annual Session		7,046.00	
Senior Medical Day		400.00	
Public Relations		500.00	
Dues and Subscriptions		500.00	
Contributions and Gifts		750.00	
Woman's Auxiliary		1,100.00	
Legal Service		5,300.00	
Special Committees		300.00	
Rural Health		300.00	
Miscellaneous		125.00	
Freight and Express		50.00	Office furnishings, dictation equipment, replace
Office Equipment		950.00	some old furniture.

		\$105,885.00	
		3,700.00	Refund to government on overpayments to Society for processing Medicare claims

		\$109,585.00	
Anticipated surplus receipts over disbursements		343.00	

SENIOR MEDICAL DAY COMMITTEE

Joseph A. Norton, Chairman

The ninth annual Senior Medical Day, sponsored by the Arkansas Medical Society and the Arkansas Academy of General Practice, with the assistance of the University of Arkansas School of Medicine, for seniors and their wives and invited guests, was held Thursday evening, April 12, 1962, beginning at 6 p. m. in the Continental Room in the Hotel Marion in Little Rock. Dr. William A. Snodgrass, President of the Arkansas Medical Society, presided.

Invitations were sent to the graduating senior medical students and their wives and guests, and to officers and members of the Council of the Arkansas Medical Society and of the Arkansas Academy of General Practice, to the officers of the Pulaski Medical Society, and to officials of the University of Arkansas Medical Center.

The officers of the Arkansas Medical Society and of the Arkansas Academy of General Practice, with their wives, formed a reception line, to greet the students and their guests.

The program for the evening was a panel which included Mrs. Hoyt Choate, of Little Rock, discussing *The Doctor's Wife*; Dr. Amail Chudy, of North Little Rock, discussing *The Doctor In General Practice*; and Dr. Thomas Townsend, of Pine Bluff, discussing *The Doctor In Organized Medicine*. These participants did their usual superb job. Their efforts were well received. The entire program was relaxed and informal and moved rapidly. Dr. Snodgrass conducted a question and answer period following the panel.

We have received a good response from this program. Certainly this project is worthwhile and should be continued. It allows an effective contact between officers of the Medical Society and the graduating senior medical students.

This same program is to be repeated for the graduating seniors of 1963, with some changes in the basic format and plan.

After consulting with the president of the senior class in 1962-3, Mr. Sloan Wilson, and with Dean Winston Shorey at the Medical Center, I proposed to the Council of the Arkansas Medical Society that we put this program on during the annual session of the Arkansas Medical Society in Little Rock on Sunday evening, 8 p. m., April 21, 1963. The Council of the Arkansas Medical Society approved this change in date. It was thought that more of the officials of the Medical Society and the Council and the Arkansas Academy of General Practice might be able to attend. The date and the time were checked with the program committee of the Arkansas Medical Society and the program committee of the Auxiliary of the Arkansas Medical Society, and no conflict was evident with those two groups. Also, the Council of the Arkansas Medical Society approved enlarging the panel on the program, to include in addition to those subjects previously discussed, a business man to speak on the financial opportunities in Arkansas.

It is hoped that there will be a good attendance from the membership of the Society as a whole at this meeting on Sunday evening, April 21, 1963. It is planned that tickets will be offered for sale to the doctors and their

wives at the registration desk in the Hotel Marion.

The Committee is grateful to all who have helped to make this program such a tremendous success in the past.

COMMITTEE ON LIAISON WITH THE STATE WELFARE DEPARTMENT

H. W. Thomas, Chairman

The Executive Committee acting as the Committee on Liaison with the State Welfare Department met with the new Commissioner of Welfare, Mr. James Phillips, and members of his staff on January 24th to review recommendations for improvement of the Arkansas implementation of the Kerr-Mills Law. Several recommendations for improvement in administrative procedures were made to the Commissioner.

The Commissioner reported that effective February 1st a new system would be inaugurated whereby those on old age assistance would receive with their monthly checks a card authorizing their doctor's visit, thus eliminating the need for monthly trips to the welfare office. It was stated that this was just the first step in a continuing program to make the Kerr-Mills Law more acceptable to the doctors and more convenient for the people whom it is designed to serve.

It was noted during the discussion that Congressman Wilbur Mills had suggested some liberalization of the eligibility requirements under the law. At the suggestion of the Welfare Commissioner, the Executive Committee of the Society met and recommended the following limits of income and assets: Alternative amounts were suggested in each case to allow the Welfare Commissioner to adapt the eligibility requirements to his budget limitations.

Single Person:

Annual income—\$1500 or \$1650. The present limit is \$1200.

Married and/or dependent children:

Maximum income either \$1650 or \$1800. The present limit is \$1500.

Value of Home:

The committee recommended that the wording of this requirement be changed to the value of the recipient's *equity*, not to exceed \$10,000. The present limit is \$7500.

Value of other property excluding home—both real and personal:

Not to exceed either \$3000 or \$3500. The present limit is \$2500.

Single Person:

May have either \$400 or \$500 cash reserve. The present limit is \$300.

Person with Dependents:

May have either \$700 or \$800 cash reserve. The present limit is \$600.

Other requirements for eligibility will remain the same.

Another meeting with the Welfare Commissioner is scheduled before the Society meets in Annual Session and the results of the committee's recommendation will be reported to the Society during the State meeting.

ADVISORY COMMITTEE TO THE ARKANSAS SELECTIVE SERVICE SYSTEM

Gerald H. Teasley, Chairman

The Medical Advisory Committee to the Arkansas Selective Service System has been requested for recommendations at infrequent intervals during the year 1962. Under the present situation, it is not contemplated that activity will be markedly increased during the calendar year 1963, but, of course, we are unable to definitely advise of this at the present time.

FIRST COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

R. C. Shanlever, Chairman

The First Councilor District Professional Relations Committee handled several cases of Medicare accounts and to our knowledge there were no repercussions, evidently being settled without any difficulties.

SECOND COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Jabez F. Jackson, Chairman

There have been four cases submitted by Medicare to this Committee for the year 1962. We approved two of these claims in favor of the doctors. On the other two claims we recommended a reduction in the overall fees.

All of these cases were settled without any difficulty. The committee and physicians have worked together most cooperatively.

FOURTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Louis K. Hundley, Chairman

The cases referred to the Fourth Councilor District Professional Relations Committee have been reviewed. The principal duty of the committee has been consideration of Medicare claims.

SIXTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Jahn Walter Janes, Chairman

The activity of the Professional Relations Committee of the Sixth Councilor District has been confined to the review of certain cases on Medicare charges. These reviews have been conducted by telephone conversation, and in all the opinions of the committee have been unanimous. During my tenure as the chairman there have been no cases reviewed in which the charges of any physician have been questioned more than once.

SEVENTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

C. F. Peters, Chairman

During the year 1962, the Seventh Councilor District Professional Relations Committee processed several cases, primarily having to do with disagreements concerning fees. There were no malpractice cases involved. All cases including Medicare were reviewed by the committee and a final settlement reached.

EIGHTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Richard M. Lague, Chairman

The Eighth Councilor District Professional Relations Committee was called on to review one case and it was found that this was not within the realms of this committee. It involved parties who were advised of the proper avenue for resolution of their problems and no further action was required of this committee.

The committee reviewed, evaluated and made recommendations concerning the charges on approximately 105 Medicare cases. Except for these routine matters, the committee had no other function to perform.

TENTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Carl L. Wilson, Chairman

This Committee has been presented with two complaints during the past year. One concerned a fee charge. After thorough investigation, this was settled amicably. The other case concerned a complaint by a patient that a physician would not treat him. Investigation revealed that the patient had been unsatisfactory when under treatment previously and that the physician had the right not to undertake any new treatment on this particular patient. This Committee has also considered several Medicare claims from this District. These all concerned small differences in fees and was settled without difficulty.

EXECUTIVE SECRETARY'S REPORT

Mr. Paul C. Schaefer

With each passing year, the Arkansas Medical Society speaks more frequently and more forcefully for the medical profession.

During the Spring and Summer of 1962, newspaper ads were purchased by the Society and two state-wide television shows were arranged for and purchased for the purpose of opposing social security medicine. Speakers bureaus were organized for the same purpose. Society headquarters worked diligently with other organizations to obtain their support.

A new responsibility assigned the Executive Secretary in 1962 was the supervision of the malpractice liability insurance program.

A state-wide polio immunization program was organized and initiated at considerable cost in money and effort. Bad publicity on the Sabin vaccine forced temporary abandonment of the state program and its subsequent resolution into individual county immunization drives.

For the first time a dinner of appreciation for our congressional delegation was organized and promoted by the Society.

Liaison with the American Medical Association is an increasing responsibility since the establishment of the national organization's field service division. Trying to cooperate with AMA programs and fit them into our limitations as to personnel and finances and make them complement our own programs is sometimes difficult to accomplish.

A study of the investment possibilities for physicians under the new Keogh law was carried out by the Executive office.

The Medical Society improved the profession's standing with the State Legislature by the establishment of a medical consultation room at the State Legislature. Volunteer members of the Society served one day each. Physicians from all sections of the State participated in this effort.

The Executive Secretary and his staff are proud to have participated in all of the above projects, each representing a new extension of society activities and responsibilities.

A continuing effort is made to improve on the accomplishment of previously established programs. The physician placement service, Journal business matters, membership records, committee meetings, conventions, public relations, grievances, liaison with other groups, Medicare, and countless other facets of daily office routine are constantly being expanded and refined. Close liaison is maintained with members of the congressional delegation.

The direction and assistance of the Council, House of Delegates, officers, committee members and members of the Society is sincerely appreciated by the Executive Secretary, his administrative assistant and the staff.

REPORT OF THE COUNCIL

H. W. Thomas, Chairman

The Council met on August 5, 1962, and transacted the following business:

1. Decided to hold a testimonial dinner for the Arkansas Congressional delegation and for Senator Kerr of Oklahoma to show the Society's appreciation for their support of medicine's views.
2. Upon the recommendation of the Councilor from the Sixth Councilor District, voted to continue Little River as an active county medical society on the basis of reported increase in membership.
3. With the approval of the remaining members of the Madison County Society, voted to dissolve that society for lack of sufficient members.
4. Approved a malpractice liability insurance plan proposed by the St. Paul Insurance Companies.
5. Decided to authorize the Society's Polio Advisory Subcommittee to attempt a mass Sabin Oral Polio Vaccine Immunization program for the whole state.
6. Voted to approve advertising and polling the membership to see if a sufficient number of seats could be sold to arrange a charter flight to the AMA convention in Atlantic City in June 1963.
7. Approved the continuation of the Arkansas Breakfast at the June AMA meetings, provided it is financed by voluntary contributions. L. E. Drewrey of Camden is chairman of the committee to raise money for the breakfast.
8. Decided to take no action on resolutions to consider not renewing the Medicare contract.
9. Approved the Professional Services Fee Schedule submitted by Blue Cross-Blue Shield for use in the Blue Shield program for persons over 65 with limited income.
10. Approved Executive Committee actions purchasing two statewide television programs against social security health care.
11. Requested the Executive Committee and the Budget Committee to review the Society's finances with a view to making a donation to the Arkansas Political Edu-

cation Committee; such donation to be contingent upon our attorney's opinion as to its legality.

The Council met on December 2nd, 1962, and transacted the following business:

1. Heard a report by Dr. Roger Bost on the decision to cancel the Society's Sabin Oral Polio Vaccine immunization program following adverse publicity from Canada. Upon the recommendation of Dr. Bost, the Council approved rescheduling the Sabin clinics on a statewide basis.
2. Commended Dr. Joe Norton for the highly successful congressional testimonial dinner which his committee had staged for the medical society on November 30th.
3. Heard representatives of investment firms discuss the possibilities for retirement plans under the newly-enacted Keogh plan. The Council requested that the Executive Secretary and the Insurance Committee investigate the possibilities for a society program of investment under the new law and report at the coming annual session.
4. The Council rejected a motion to donate \$5,000 to the Arkansas Political Education Committee.
5. Approved expenses for Mr. Warren to attend a meeting of medical society legal counselors in Miami.
6. Heard discussion of the problem of obtaining interns for Arkansas hospitals and appointed a committee to consider the subject. The committee was directed to report its findings at the annual session of the Society.

The Council met on January 20, 1963, and transacted business as follows:

1. Voted to bring the statement on advertising policy in the masthead of the Journal up to date by a change in wording.
2. Voted to implement, with modifications, the Georgia plan of administering the St. Paul malpractice liability insurance program.
3. Approved the budget for 1963 as presented by the Budget Committee, with an amendment to increase the annual retainer of Mr. Warren.
4. Decided to reactivate the Commission on Health Care of the Aged.
5. Voted to renew the Medicare contract for another year beginning April 1, 1963.
6. Approved holding the annual senior medical day on Sunday night in connection with the Society's annual session.
7. Decided to withdraw support of a proposed measure to allow admission of out-of-state students to the freshman class at the Medical School.
8. Voted not to introduce a drug control bill.
9. Approved the establishment of a medical consultation room for the benefit of members of the State Legislature, to be manned by volunteer members of the Medical Society.
10. Voted to authorize the Executive Committee and the Society attorneys to take whatever action was deemed necessary on a proposed chiropractic act.
11. Voted to accept AMPAC's offer to stage a program on practical political action following a later meeting of the Council of the Arkansas Medical Society.

REPORT OF THE ARKANSAS STATE
MEDICAL BOARD

Joe Verser, Secretary-Treasurer

February 1, 1962 - February 1, 1963

The Secretary of the Arkansas State Medical Board makes the following report of the activities of this Board since the last meeting of the Arkansas Medical Society:

The officers and members are as follows:

- Frank M. Burton, M.D., Chairman
- Jeff Baggett, M.D., Vice-Chairman
- Joe Verser, M.D., Secretary and Treasurer
- G. D. Murphy, Jr., M.D.
- Wm. A. Snodgrass, Jr., M.D.
- H. J. Hall, M.D.
- Hugh R. Edwards, M.D.
- Earle D. McKelvey, M.D.
- John F. Guenther, M.D.

The Board investigated every case of violation of the Medical Practice Act reported to the Secretary during the year. The Board was involved in more court proceedings than any other time during the history of the Board. Two court convictions were obtained and four cases are now pending. Eight injunctions were issued. A number of injunctions, prepared by the Board's Attorney against physicians, were withdrawn when the physician involved voluntarily surrendered his narcotic stamp or voluntarily ceased the practice of medicine. The U. S. Circuit Court of Appeals ruled in favor of the Board in the case of Bockman vs. The Arkansas State Medical Board. The Board revoked the licenses of two physicians.

A yearly financial report of the Board's activities, prepared by Johnston, Freeman & Company, Certified Public Accountants, was sent to and approved by the Council of the Arkansas Medical Society.

Following is a report of the Board's proceedings during the past year:

Physicians registered for 1963:

Resident	1237
Non-Resident	689
Physicians licensed by examination	80
Physicians licensed by reciprocity	42
Physicians certified to other states	81
Medical Corporations	15
Licenses revoked for non-payment of annual registration fee	38
Licenses suspended for non-payment of annual registration fee	35
Court convictions obtained	2
Cases pending	4
Injunctions issued	8
Licenses revoked	2

FINANCIAL REPORT

February 1, 1962 - February 1, 1963

Cash balance in bank—Feb. 1, 1962	\$12,213.87
Time deposits	14,526.96 26,740.83

RECEIPTS:

Registration fees	7,335.00
Certification fees	1,220.00
Reciprocity fees	3,800.00

Examination fees	4,237.50
Directories	204.50
Physical Therapy fees and dues	294.00
Medical Corporation Registration fees and dues	285.00
Miscellaneous	432.61
Interest on time deposits	441.50 18,250.11

Total cash available

\$44,990.94

DISBURSEMENTS:

Salaries, FICA taxes, Board	
Members' fees and expenses	\$ 9,657.37
Attorney's fee, expense and investigations	4,063.95
Dues and expenses to Federation of State Boards of U. S.	600.00
Office rent, supplies, printing, telephone, postage, etc.	2,314.68
Refund of fees	588.00
CPA audit	175.00
Physical Therapy expense	129.14
Miscellaneous—returned checks, bond, box rent, etc.	208.00 \$17,736.14

Cash balance in bank—Feb. 1, 1963

\$12,286.34

Time deposits

14,968.46 \$27,254.80

\$44,990.94

ANNUAL REPORT 1962

ARKANSAS STATE HEALTH DEPARTMENT

to the

ARKANSAS MEDICAL SOCIETY

By J. T. Herran, M.D., State Health Officer

The State Health Department through its Bureau of Vital Statistics recorded a birth rate of 232.7 per 100,000 population (41,559 births) and a death rate of 99.6 per 100,000 population (17,790 deaths).

The ten leading causes of death in the state are listed as follows:

Cause of Death	Total	Rate per 100,000 Population
1. Heart Diseases (all forms)	6,384	357.39
2. Neoplasms (cancer)	2,484	139.06
3. Vascular lesions (stroke)	2,412	135.03
4. Accidents (all forms)	1,120	62.70
5. Pneumonias (all types)	607	33.98
6. Other diseases of early infancy	317	17.75
7. Diabetes Mellitus	253	14.16
8. Birth injuries, asphyxia, etc.	252	14.11
9. Diseases of intestines and peritoneum	217	12.15
10. Nephritis and Nephroses	199	11.14

The department, through its Division of Hospitals and Nursing Homes very closely supervises hospitals and nursing home construction under the Hill-Burton program. During the year the division licensed 148 hospitals and 114

nursing homes. The routine inspectional program for these facilities under the licensing program revealed considerable improvement in the level of care and the degree of compliance with the requirements of the regulations. During the year 229,530 Arkansans spent 1,332,582 patient-days in hospitals. This was a decrease of approximately 15,000 from the previous twelve-month period. Federal aid through the Hill-Burton program permitted considerable progress in the construction phase of approximately 29 projects which included nursing homes and hospitals. Twelve new privately financed nursing homes with 474 beds were under construction or completed.

During the year the department established and rapidly developed a medical self-help training program through its Health Mobilization Planning for Civil Defense. To date approximately 3,000 individuals in the state have satisfactorily completed the 12 lesson, 16 hour, intensive course in the techniques of basic survival and medical self-help. This basic training course is very much in demand.

Through the efforts of the Bureau of Dental Health the program in fluoridating water supplies was further extended by adding McCrory, Madison, West Memphis, DeWitt, and Trumann to the list of cities now fluoridating the water supply. Approximately 419,364 of our citizens are now drinking fluoridated water. In years to come this treatment of water supplies will greatly reduce dental caries.

The Division of Communicable Disease Control was concerned over a diphtheria outbreak in Poinsett County and the fact that typhoid cases are occurring too frequently in scattered areas of the state, 32 cases of typhoid were reported which matches the low incidence of 1958. During the year 23 cases of poliomyelitis were reported, 13 were paralytic and 10 non-paralytic. The 23 reported cases are 13 less in number than the 36 cases reported for the preceding year. Animal rabies, 65 cases, dropped 50% during the year and only 17 cases of anthrax in cattle.

Through the efforts of the Maternal and Child Health Division and the physicians of the state the practice of midwifery has dropped remarkably during the past ten years. Before the adoption of regulations forbidding the practice of midwifery without a permit there were 719 midwives, now there are 297 who made 3,597 deliveries, 8.6% of all the live births in the state during the year.

Activities in the control of venereal diseases were very effective. 9,278 persons were sought out, interviewed for contacts, diagnosed and brought to treatment by either local private physicians or in local health department clinics. Gonorrhea was on the increase with 7,616 cases treated and reported, 249 cases of primary and secondary syphilis were treated, 101 cases of early latent syphilis, 1,297 cases of syphilis of other types and 15 cases of the minor venereal diseases (i.e. chancroid, lymphogranuloma and granuloma inguinale). Physicians throughout the state have become more interested in venereal disease control and are reporting these diseases much more promptly and accurately than in the past.

Accident prevention is one of our comparatively new programs. Accidents accounted for 1,120 deaths during the period of this report for a rate of 62.70 per 100,000 population. It is estimated that for each accidental death there are 100 disabling injuries. During the period there

were 107 deaths caused by fire. This is a low figure compared to prior years. Great progress is being made in home and school safety or accident prevention.

The Bureau of Sanitary Engineering and its Divisions of Engineering, Plumbing, Food and Drug Control, Dairy Products, and Fluid Milk, have rendered valuable services on a state-wide basis throughout the year. With new public water systems constructed at Plainview, White Hall, Gassville, Gilmore, Hackett, and Eden Isle, community water facilities are now available to more than 50% of the state's population. A total of 251 public water systems are now in operation.

Ten new sewer systems were built, bringing the total number to 157 which serves approximately 850,000 of our population.

A total of 630 sets of plans for various improvements or construction were reviewed during the year. These proposed improvements and construction costs are estimated at \$16,000,000.00. The Engineering Division has licensed 604 waterworks operators. This is an increase of 46 over last year. Eleven additional Arkansas communities adopted a plumbing code during the year. The Plumbing Division also reported 1,071 licensed master plumbers, 941 licensed journeymen plumbers and 295 registered apprentices.

The Food and Drug Division reported 153,515 pounds of food, drugs and cosmetics to be adulterated, misbranded or otherwise violative. This merchandise was destroyed, made into animal food, cleaned or subjected to a germicidal agent or relabeled for marketing. An active part was also taken in apprehending five (5) "quack" cancer and other "medical specialists" during the year. Under the new state narcotics laws the division inspected 379 drug store prescription files for violations.

The Dairy Products Division made 1,143 inspections and condemned 1,454 pounds of milk, 56 gallons of liquid malt, 21 gallons of frozen dessert. These products were either unfit for human consumption or were mislabeled. The Fluid Milk Control Division which was established in 1961 reports 9 milk shed surveys, 442 dairy farm inspections and 139 milk plant inspections. Pasteurized milk is now so widely distributed that it is available to all of our population. It is now the opportune time to entirely eliminate the sale of raw milk.

The department's Bureau of Laboratories performed and completed 347,593 examinations on 166,539 specimens or samples sent in principally by physicians in private practice from all areas of the state. This performance and service is an increase over the preceding year.

The Division of Chronic Diseases in the State Health Department was established on January 1, 1962, as a new program. The program offers home nursing services by public health nurses to the chronically ill or disabled aged in their homes under the direction and supervision of their private physician. No one is admitted to this service for care unless the local private physician requests the service and furnishes the public health nurse with written orders. At the present time this program has been established in ten counties on the request and approval of the local medical society. This program is very popular with the private physician, and the patient and his family since the patient may remain at home under the direct super-

vision of his physician and receive the basic nursing services ordered by the physician.

A. M. A. DELEGATE REPORT

J. M. Kolb, M.D.

Health care for the aged, medical ethics, graduate medical education, expansion of the AMA Board of Trustees and a study of the sections and scientific program of the AMA were among the major subjects acted upon by the House of Delegates at the American Medical Association's Sixteenth Clinical Meeting held November 25-28 in Los Angeles.

The House reaffirmed, without compromise or change, the Association's present policy of opposition to the King-Anderson type of legislation and support for the Kerr-Mills program. In so doing, it also approved in principle the following suggested amendments to the Kerr-Mills Law:

1. Remove the requirement that both Old Age Assistance (OAA) and Medical Assistance for the Aged (MAA) programs be administered by the same agency;
2. Provide flexibility in the administration of the income limitations proposed under state law so that a person who experiences a major illness may qualify for benefits if the expense of that illness, in effect, reduces his money income below the maximum provided;
3. Include a provision in the law requiring state administering agencies to seek expert advice from physicians or medical societies through medical advisory committees; and
4. Provide for "free choice" of hospital and doctor under state programs.

At the same time, the House also endorsed in principle four proposed amendments to the Internal Revenue Code, designed to assist in financing the medical and hospital expenses of the aged. These amendments would: liberalize tax deductions for medical expenses of dependents over age 65; remove the 1 per cent drug limitation and include drugs as medical expenses; permit taxpayers over age 65 to receive full tax benefit for medical expenses by use of the carry-forward and carry-back principle, and provide a tax credit for medical expenses paid by the over age 65 taxpayer, proportionate to the relation between his medical expense and taxable income.

The House also approved a status report which concluded with this statement:

"It is our strong conviction that the legislative situation, the expanding health insurance and prepayment coverage, the improving economic status of the aged, and the many other factors cited in this report require that we face the 1963-1964 Congressional campaign without defeatism or complacency and with pride in the progress that has occurred. Finally, it is, above all, essential that our position not be undermined by the adoption of any policies that compromise our basic principles."

MEDICAL ETHICS

The Judicial Council submitted a report containing new opinions on the medical ethics involved in physician ownership of drug stores, drug repackaging houses and drug companies, dispensing of glasses by ophthalmologists, and advertising practices of medical laboratories. The House decided that the questions of physician ownership of drug

stores, drug repackaging houses and drug companies, and the dispensing of glasses by ophthalmologists, should not be acted upon at this time. Those opinions were returned to the Judicial Council for further study and report. The House approved the portion of the report relating to advertising practices of medical laboratories and agreed that the propriety of such practices should be determined at the local level in compliance with the new opinion. The House also approved the rules of procedure adopted by the Judicial Council for disciplinary action in cases where the Association now has original jurisdiction as conferred by the June, 1962, change in the Bylaws.

INTERNS AND RESIDENTS

A special report on the compensation of interns and residents, which was published in the October 27 issue of JAMA, was presented to the House by the Council on Medical Education and Hospitals and the Council on Medical Service. The report was submitted as information only, with a request for further study, comments and suggestions. The House urged that all delegates, hospital staffs and medical societies discuss the report and forward all suggestions to the two Councils in time to influence the form of the report to be presented for action at the June, 1963, meeting.

In another action on graduate medical education, the House approved a report on internships and hospital services in which the Council on Medical Education and Hospitals recommended numerous changes in the Essentials of an Approved Internship. The House declared that "their acceptance will further strengthen the educational values of the internship and advance American medicine's contribution to worthy goals of international educational exchange."

The House modified one Council recommendation to read as follows:

"In order to maintain high standards of education and better assure the patients' welfare, at least 25% of the total house staff (interns and residents) of a hospital should be graduates of accredited United States or Canadian medical schools. When United States and Canadian graduates represent a lesser portion of the house staff for two successive years, this will warrant that serious consideration be given to disapproving the internship."

The House instructed the Council on Medical Education and Hospitals to exert every possible effort and influence so that all hospitals with approved house officer training programs accept a reasonable number of foreign medical school graduates.

BOARD OF TRUSTEES

The House, by a vote of 130 to 48, adopted changes in the Constitution and Bylaws which would have implemented the June, 1962, recommendations of the Ad Hoc Committee on the Board of Trustees, including expansion of the Board from 11 to 15 members. However, the Judicial Council later informed the House that the affirmative votes necessary to amend the Constitution should have totalled at least 144, or two-thirds of the 216 voting delegates registered at the Wednesday session. The House then adopted a motion to vote on the proposed Constitutional

amendments, in accord with the changes made in the By-laws, at the opening session of the June, 1963, meeting.

MISCELLANEOUS ACTIONS

In considering a wide variety of resolutions and annual and supplementary reports, the House also:

Instructed the Board of Trustees to use every influence in their command to have the *Hill-Burton Law* amended in such a manner as to eliminate all categorical grants, eliminate the term "diagnostic and treatment centers" from any listings in the act and prevent federal funds being awarded under existing law as a grant to closed panel medical corporations to build diagnostic and treatment centers.

Declared that it is both the responsibility and duty of the AMA to submit testimony before Congress on the subject of *research appropriations* in the health field.

Urged state and county medical societies to continue promoting the aggressive, consistent development of *Blue Shield* senior citizen programs.

Encouraged medical societies and physicians to provide cooperation and leadership in the formulation and operation of regional *hospital planning* bodies.

Approved *Essentials of Acceptable Schools for Inhalation Therapy Technicians, Cytotechnology and Medical Technology and of Approved Residencies in Pediatric Cardiology.*

Recommended that a Board report and two resolutions dealing with the "*Liberty Amendment*" be re-referred to the Council on Legislative Activities for further study.

Warned against the dangerously low level of immunization for *smallpox* and urged physicians and their patients to maintain the needed protection.

Pointed out that state and county medical societies should collaborate with departments of *public health* in the interest of community health, always keeping in mind the need for a proper balance between local public health

programs and the private practice of medicine.

Authorized the Board of Trustees to investigate the feasibility of establishing a *physicians' pension plan* and to present a plan for the implementation of such a program to the House in June.

Instructed the Board of Trustees to study the feasibility of *regional clinical sessions*, taking into consideration the already established regional meetings of medical specialty groups and the Academy of General Practice.

Commended the Council on National Security and its Committee on *Disaster Medical Care* for initiating a visitation program with committees on emergency medical service of state medical societies.

Expressed appreciation and thanks to the *Woman's Auxiliary* for their impressive accomplishments in behalf of our free society.

OPENING SESSION

The delegates learned from a report by the American Medical Association Education and Research Foundation that one out of every ten medical students in the U. S. is now benefiting from the new student loan program. Since its inception nine months ago, the program has granted loans totaling more than nine million dollars to 3,042 medical students and 1,787 interns and residents, with applications being received at a rate of 150 per week. It also was announced that Merck Sharp & Dohme pharmaceutical company is making a second matching grant of \$100,000 in support of the loan fund. The AMA-ERF also received contributions totaling \$440,583 from physicians in five states for financial aid to medical schools.

REGISTRATION

Final registration at the meeting reached a total of 10,908 including 5,209 physicians.

PROGRAM

THIRTY-NINTH ANNUAL SESSION

WOMAN'S AUXILIARY TO THE ARKANSAS MEDICAL SOCIETY

Little Rock, Arkansas—April 21, 22, 23, 1963

Sunday, April 21

- 1 to 5 p.m. Registration, Marion Hotel
- 5 to 7 p.m. Reception at Top of the Rock. Hosts: North Little Rock Doctors and their wives.

Monday, April 22

- 8:00 a.m. Pre-convention Board Meeting and Breakfast, Mirror Room, Albert Pike Hotel. Hostesses: Mrs. Guy Farris, and Mrs. Harlan Hill, President and President-elect, Pulaski County Auxiliary.
- 9:30 a.m. Opening General Session: New Room, Albert Pike Hotel
Mrs. Frank Padberg, President, presiding
Invocation: Mrs. T. D. Brown, Chaplain
Introduction of Honor Guests
Introduction of President-elect, Mrs. Glen Keller
Greetings: Dr. H. King Wade, Jr., President, Arkansas Medical Society
Address of Welcome: Mrs. Guy Farris, President Pulaski County
Response
Introduction of Convention Chairman, Mrs. Amail Chudy
Convention Announcements
Roll Call and seating of delegates
Reading of minutes of the 1962 Convention
Convention Rules of Order: Mrs. Hoyt Choate, Parliamentarian
Announcement of Convention Committees
Report of the Executive Board
Reports of Officers and Committee Chairmen
- 11:00 a.m. Workshop for new county officers and committee chairmen, Room 316, Albert Pike Hotel
- 12:30 p.m. Luncheon: New Room, Albert Pike Hotel, honoring Mrs. Elias Margo, President, Southern Medical Auxiliary
Mrs. Frank Padberg, President, presiding
Invocation: Mrs. James L. Smith
Introduction of Guests
Introduction of Members-at-Large: Mrs. Paul Gray
Presentation of Doctors' Day Awards: Mrs. Art Martin
Introduction of Speaker: Mrs. C. C. Long, Ozark
Address: Mr. T. C. Petersen, Director, Program Development Division, American Farm Bureau
Summer Fashion Show by Feinstein's

Tuesday, April 23

- 8:00 a.m. Past Presidents' Breakfast, Mirror Room, Albert Pike Hotel
Mrs. William A. Snodgrass, Chairman
- 9:30 a.m. Second General Session, Parlor A,B,C, Albert Pike Hotel
Mrs. Frank Padberg, President, presiding
Invocation: Mrs. T. D. Brown, Chaplain
Report of Nominating Committee, Mrs. Hershel Wilmoth
Election of Officers
Report of the Courtesy Resolutions Committee
Reports of County Presidents
- 11:30 a.m. Memorial Service with Arkansas Medical Society
Lecture Hall, Robinson Auditorium
- 1:00 p.m. Luncheon, Country Club of Little Rock, honoring Mrs. William
G. Thuss, President, Woman's Auxiliary to the American Med-
ical Association
Mrs. Frank Padberg, President, presiding
Invocation: Mrs. Hoyt Choate
Introduction of Guests
Speaker: Mrs. William G. Thuss
Introduction of Past Presidents
Introduction of County Presidents
Presentation of AMA-ERF awards: Mrs. H. Wallace Thomas
Installation of Officers: Mrs. William G. Thuss
Presentation of Past President's Pin
Presentation of President's Pin and Gavel
- 3:00 p.m. Post Convention Board meeting, Country Club of Little Rock, Mrs.
Glen Keller, President, presiding

MEDICINE IN THE



Arthritis Clinic Will Be Opened at Hot Springs

Hot Springs has been chosen for the nation's second Special Arthritis Evaluation Clinic sponsored by the March of Dimes. The Clinic will be located at St. Joseph's Hospital and will be under the direction of Dr. Thomas Durham. Serving on the medical staff along with Dr. Durham, will be Dr. Joseph Rosenzweig, pediatrician, and Dr. Driver Rowland, rheumatologist. All three will serve without pay.

AMA-ERF's Medical Education Loan Guarantee Program Met With Enthusiasm

The response to AMA-ERF's new Medical Education Loan Guarantee Program has been so enthusiastic that the Fund which underwrites bank loans is virtually committed.

An appeal is being sent to all physicians in the United States to give generously to expand this Fund to meet the needs of an expected 7,500 students, interns and residents who will be asking on the medical staff along with Dr. Durham, have received loans since the plan started in March, will need this money to meet essential training and living expenses. Already, one in every ten medical students across the nation has borrowed through this program.

New Grants to Health Research Facilities Announced

Award of \$21,792,940 to 54 institutions in 28 states for construction of health research facilities was announced recently by Dr. Luther L. Terry, Surgeon General of the Public Health Service.

The health research construction program awards matching funds to medical and dental schools, schools of public health, nonprofit hospitals, and other research institutions to build and equip research facilities. It is administered by the Division of Research Facilities and Resources at the National Institutes of Health, in Bethesda, Maryland. Recommendations for grants are made by the National Advisory Coun-

cil on Health Research Facilities. The grants are awarded following approval by the Surgeon General.

The University of Arkansas, Fayetteville, Arkansas was granted \$150,000 for the Infectious Disease Research Laboratories.

THE TENURE IN OFFICE OF U. S. MEDICAL SCHOOL DEANS

The average tenure of the present U. S. medical school deans is almost 7 years. The median tenure is a little over 5 years. The range in time extends from 1 month to almost 27 years. William K. Selden reported in 1960 the average tenure of current university and college presidents (excluding acting) as 8.1 years.*

As of September 30, 1962, twelve deans in established U. S. medical schools had been replaced by new appointments during the academic year 1961-62. One dean (Utah) was appointed on October 1st, making a total of 13 new deans to be introduced at the AAMC Annual Meeting in Los Angeles on October 29, 1962. Four deans of newly developing schools as well as three acting deans in U. S. schools and 2 new deans in Canadian schools were also introduced at the Annual Meeting, but their tenure in office was not considered relevant to the present analyses and data concerning their length of service have been excluded.

The data presented here pertain exclusively to deans who had received formal appointments prior to September 30, 1962 and in schools where actual student enrollments had taken place. Eighty-three deanships met these criteria.

The information for this Datagram was furnished in September by each dean, who had been requested to state the date of his appointment, whether or not he had been appointed from the staff of the school in which he now serves, and whether he had held a deanship in another school

*Submitted by the Division of Operational Studies of the AAMC, 2530 Ridge Avenue, Evanston, Illinois.

†Selden, W. K., How Long Is a College President? *Liberal Education*, 46: No. 1, Washington: Association of American Colleges, 1960.

prior to assuming the present office.

Sixty-three percent or about 3 out of 5 of current U. S. medical school deans were appointed from within the institutions in which they now serve, respectively.

The information on prior deanships indicates that 11% of current deans have held one or more prior appointments as deans in medical schools other than the one in which they are currently

working. Taking into account the 23% who have been in their present positions 10 years or more, it can be seen that about one-third of all present deans have devoted a very substantial part of their professional careers to the administrative aspects of medical education.

Figure 1 provides a graphic representation of the deanship tenure in 83 U. S. schools. It will be noted that 1 out of 5 deans is a veteran of 10 or more years' service while about the same number served less than 2 years in his present post.

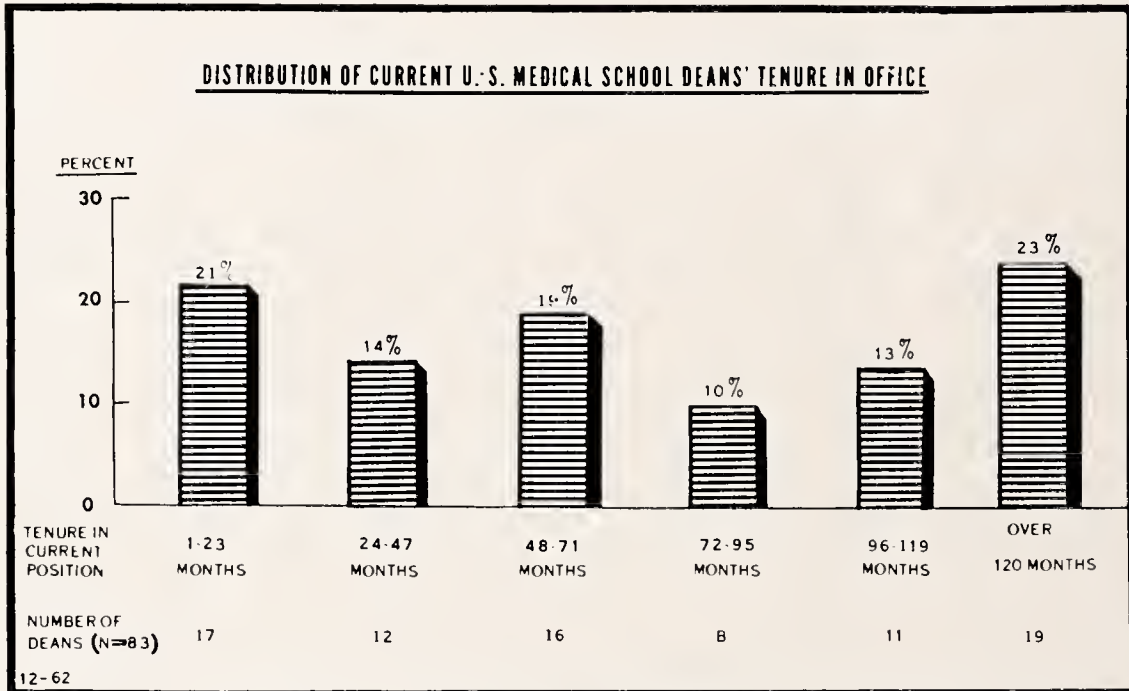


FIGURE 1

NOTE

Regarding Datagram "Full-Time Physician Faculty by School of Graduation"

In a sense we are gratified by the active response occasioned by our Datagram, "Full-Time Physician Faculty by School of Graduation," published originally in *The Journal of Medical Education*, Vol. 36, No. 2, pp. 178-179, February, 1961, in "Datagrams," the Fact-Sheet Series, Vol. 2, No. 8A, February, 1961, and clarified and corrected in the Erratum which was released with the Datagram in November, 1962.

In 1924 the University of Chicago undertook to award the M.D. degree to graduates of Rush Medical College. This arrangement continued until the year 1942, at which

time Rush Medical College ceased to operate as a medical school. In 1927, the University of Chicago established its own medical school on its main campus. This was called the University of Chicago School of Medicine which graduated its first class in 1934. From 1934 to 1958 the University of Chicago School of Medicine produced 1,444 graduates of whom 148 held full-time teaching and research positions in 1960 in medical schools.

Thus about 10% of the graduates of the University of Chicago School of Medicine were full-time members of medical school faculties in 1960 in contrast to the 6% reported in the Erratum which combined the graduates of Rush Medical College and the University of Chicago School of Medicine.

THE MONTH IN WASHINGTON

Washington, D.C. — The federal government appreciably increased its controls over the clinical testing of new drugs, including antibiotics, with new regulations effective Feb. 7.

The new regulations of the Food and Drug Administration require that the FDA be put on notice and given full details about the distribution of drugs for investigational use; that clinical investigations be based on adequate studies on

animals, and that the clinical tests be properly planned, executed by qualified investigators, and that the investigators and the FDA be kept fully informed of the adverse findings of other investigators during the progress of the investigations.

If an investigation develops evidence that the drug is not safe or is ineffective, the FDA said it will order discontinuance of clinical tests.

The old regulations did not require either an initial notice to FDA of a clinical trial of a new

drug or subsequent reports on such use.

Before they were announced in their final form, numerous modifications were made in the version published on Aug. 10, 1962, as proposed regulations. More than 300 written comments on the proposed regulations were received by the FDA. In addition, FDA officials met with representatives of the AMA and various other interested scientific groups.

But the FDA did not make all the changes urged by the scientific groups.

The Pharmaceutical Manufacturers Association credited the Department of Health, Education and Welfare and the FDA with modifying the regulations as originally proposed sufficiently that "most of the major difficulties found by reputable medical scientists" had been resolved.

But the PMA said "the burden of paperwork imposed by the new regulations is enormous."

"The success of the department meeting its stated goals will of course depend in large part on the wisdom of administration of these regulations," the PMA said. "It is hoped that remaining troublesome problems may be resolved in the near future by appropriate amendments."

One modification was designed to permit some flexibility in the planning of the investigation of the safety and effectiveness of a new drug. Another modification cut down on the record-keeping requirements.

To meet criticisms that the regulations as originally proposed would impinge upon the physician-patient relationship by calling for inspection of the clinical records, the FDA said:

"The provisions for inspection of the patient's records have been modified to make it clear that the investigator may withhold the names of volunteers or patients unless the records of a particular volunteer or patient require a more detailed study of drug effects, or unless there is reason to believe that the records do not represent actual results obtained.

"... if the record has been sent to the sponsor by the investigator, there is no confidentiality, and the record is to be made available by the sponsor for inspection by a properly authorized employee of the Department of Health, Education and Welfare. Where the record has not been sent to the sponsor, the investigator is required to maintain it and make it available upon request of a scientifically trained and specially authorized employee of the Department."

The proposed regulations dealing with publi-

cation of findings of investigators were construed by some as restricting free flow of scientific information. But the FDA said the regulations were "not intended to bar factual news reporting to scientists or the public."

The proposed regulations also were said to deny extremely important new drugs, not yet approved for general distribution, to patients who might need them urgently as a life-saving measure. The FDA denied this, saying "there is no bar in the regulations to giving the necessary instructions to and obtaining the necessary commitments from a new investigator by telephone in case this is needed to save a life."

Pending further consideration, radioactive new drugs were exempted from the new regulations if they are shipped in accordance with current regulations of the Atomic Energy Commission.

FDA Commissioner George P. Larrick said that the regulations as issued provide strong and necessary controls over the investigational use of new drugs and meet all of the new provisions in the Kefauver-Harris Amendments of 1962, including assurance that patient consent to the use of investigational drugs be obtained by the investigators, unless in their professional judgment this is not feasible or is contrary to the patient's best interest.

However, the new regulations were issued under an old law. The drug testing provisions of the new law do not become effective until next May 1.

Before issuance of the new regulations, HEW Secretary Anthony J. Celebrezze approved a reorganization of the Division of New Drugs of the FDA's Bureau of Medicine. The HEW said the reorganization was designed to "permit FDA to discharge more effectively its increased responsibilities in the new drug area."

The Public Health Service recommended use of type III Sabin oral polio vaccine after having banned it for three months while its safety was being reviewed. But the PHS still recommended that older adults take it only if their risk of catching the disease is higher than normal.

Surgeon General Luther L. Terry acted upon the recommendation of his special polio advisory committee. Dr. Terry urged that communities use all three types of the Sabin vaccine in polio immunization campaigns with particular emphasis on children and young adults.

The advisory committee said:

"Because the need for immunization diminishes

with advancing age and because potential risks of vaccine are believed by some to exist in adults, especially above the age of 30, vaccination should be used for adults only with the full recognition of its very small risks."

The PHS reported that polio continued to decline last year. There was a drop of 35 per cent from 1961 in the number of cases. There were 866 cases, including 707 paralytic, reported through Nov. 30.

T.B. Association Statewide Educational Campaign

The Arkansas Tuberculosis Association and its county affiliates are planning to participate in a nation-wide educational campaign to be launched by the National Tuberculosis Association next May through June 15. The Campaign will center around two questions: "Cough too much?", "Short of Breath?" These two questions will be asked from coast to coast and from border to border to alert people to two symptoms of chronic respiratory disease — and to convince them that they should consult their doctors about the symptoms.

Dr. James Perkins, Managing Director of NTA, says that this is the first nation-wide educational respiratory disease campaign and that it is being planned because of the increasing threat to health represented by respiratory diseases.

Respiratory diseases, both acute and chronic, are a leading cause of disability and death in the United States today. Statistics from the National Health Survey show that diseases affecting or transmitted through the respiratory system are responsible for one out of every 10 deaths and that deaths from emphysema alone more than doubled between 1954 and 1959.

Since other respiratory diseases that damage the lungs or hinder breathing have a direct bearing on tuberculosis, the National Tuberculosis Association is concerned with all respiratory diseases. Educational material has been given wide distribution in the past two years on the dangers of influenza and urging everyone, especially those suffering from a respiratory disease, to obtain "shots".

Plans for the educational campaign in Arkansas have not been completed, but it is anticipated that physicians will be asked to participate.

The Arkansas Hospital Association has been asked to assist in the survey to determine what hospitals in Arkansas have equipment for measuring pulmonary function. The Arkansas Outdoor Advertisers will post 50 large out-door billboards early in the campaign and radio, television and newspapers have pledged their support.

Experimental Laboratory to Be Established at the U of A Medical Center

An experimental laboratory to study the use of aerosols in packaging medicines will be established at the University of Arkansas Medical Center.

The laboratory will be a part of the School of Pharmacy and will be initiated under a \$2,000 grant from Dunhill, Inc., a Gravette, Ark., firm distributing drugs, chemicals and biologicals. The grant is to Dr. W. A. Strickland, associate professor of pharmacy. Dr. Strickland will supervise the laboratory. So far as he knows, the laboratory will be first of its kind in the South.

NOTICE

The University of Arkansas Medical Library requests that subscribers to the Journal send their old copies to the library. There has been a demand for the Journal from both foreign and domestic libraries which exceeds the current supply at the library.

NOTICE

An article entitled "Nationalised Medicine in Britain—The Winds of Change" was published in the October edition of the Journal of the Arkansas Medical Society. The author, Dr. John Seale informs us that a more complete version of his text can be found in "Northwest Medicine" (May 1962) Vol. 61, Page 448.

THINGS TO COME

American Academy of Physical Medicine and Rehabilitation Meeting Announced

The Annual Meeting of the American Academy of Physical Medicine and Rehabilitation will be held on August 26, 1963 at the Sheraton-Dallas Hotel, Dallas, Texas.

Address all communications to Doctor Max K. Newman, President, American Academy of Physical Medicine and Rehabilitation, 30 North Michigan Ave., Chicago 2, Illinois.

Post Graduate Course in Trauma to Be in Chicago

The Chicago Committee on Trauma of the American College of Surgeons announces the Seventh Post Graduate Course in Trauma April 24, 25, 26, and 27, 1963. It will be under the direction of Dr. Sam W. Banks.

Public Health and Medical Chemical and Biological Defense Courses

Arrangements have been made by the Training Branch of the Division of Health Mobilization, United States Public Health Service, with the United States Army Chemical Corps School, to conduct six one-week courses during the fiscal year 1963, beginning in January and continuing one each month through June.

These courses are not eligible for partial (Federal) reimbursement of student expenses since they are not being conducted at an Office of Civil Defense School.

Application forms for the courses are available from the Arkansas State Board of Health, Little Rock. Applications for attendance should be forwarded as early as possible. Since regional quotas have not been established, the applications will be considered as received.

Chest Physicians Announce Meetings

The American College of Chest Physicians has announced the following schedule of forthcoming national and international meetings and postgraduate courses:

NATIONAL AND INTERNATIONAL MEETINGS

29th Annual Meeting, American College of Chest Physicians

Ambassador Hotel, Atlantic City, June 13-17, 1963

Interim Clinical Meeting, American College of Chest Physicians

Portland, Oregon, November 30, December 1, 1963

8th International Congress on Diseases of the Chest
American College of Chest Physicians
Mexico City, October 11-15, 1964

POSTGRADUATE COURSES

Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs
Washington, D. C., October 14-18, 1963

Clinical Cardiopulmonary Physiology
Chicago, October 21-25, 1963

Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs
New York City, November 11-15, 1963

Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs
Los Angeles, December 2-6, 1963

Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs
Miami Beach, January 13-17, 1964

Complete details of all meetings and postgraduate courses may be obtained by writing Mr. Murray Kornfeld, Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

Tutorial Program in Cardiology Offered

A nine month tutorial program in Cardiology, September 15, 1963 to June 15, 1964, will be offered by the Institute for Cardio-Pulmonary Diseases, Scripps Clinic and Research Foundation, La Jolla, California. This will be an intensive, academic effort covering the field of cardiovascular diseases and is especially designed for the practicing physician who desires thorough instruction in this field and for the physician who is finishing his period of formal training and wants a final intensive orientation in cardiology. For details, write: Executive Secretary, Institute for Cardio-Pulmonary Diseases, Scripps Clinic and Research Foundation, La Jolla, California.



PERSONAL AND NEWS ITEMS

**Dr. John Seale, Surrey, England, to
Lecture in London**

Dr. John Seale, Surrey, England recently obtained a part-time clinical appointment at St. Thomas's Hospital in London, and has been asked to give one of the officially sponsored British Medical Association lectures for 1963.

Dr. Baldrige Joins VA Staff

Dr. H. K. Baldrige, who has practiced medicine and surgery in Heber Springs for several years, has recently joined the staff of the Veterans Administration Fort Roots hospital at Little Rock. He will do advanced study in psychiatry.

**Dr. Nixon Is New President of
Jefferson County Medical Society**

New officers of the Jefferson County Medical Society are Dr. W. R. Nixon, president; Dr. S. C. Monroe, vice president; and Dr. A. E. Pollard, secretary.

New Medical Society Officers Elected

Dr. Elvin Shuffield was elected president-elect of the Pulaski County Medical Society. Dr. Robert C. Watson was elevated to the presidency of the organization, succeeding Dr. John McCullough Smith. Other officers include: Dr. W. Payton Kolb, vice president; Dr. James R. Walt, secretary; Dr. William S. Orr, treasurer-elect, and Joe B. Scruggs, incoming treasurer.

**Dr. Dalton to Head Ouachita County
Medical Society**

The new officers recently elected to the Ouachita County Medical Society are: Dr. P. J. Dalton, president, Dr. R. B. Robins, secretary, Dr. B. D. King, vice president, Dr. Henry Hearnberger, delegate and Dr. Tom J. Meek, alternate.

Dr. R. B. Robins Publishes Book

Dr. R. B. Robins of Camden, Arkansas, has received notice from his publishers, The Year

Book Medical Publishers of Chicago, that a book which he has edited will be published in the early part of this year. The title of the book is "The Environment of Medical Practice."

**Dr. Johnson Elected President of
Independence County Medical Society**

The Independence County Medical Society elected Dr. O. T. J. Johnson president of the Association. He was also elected delegate to the Arkansas Medical Society that will be held in Little Rock early this year.

Dr. Bintliff to Head Staff at St. Michael's

Dr. C. V. Bintliff was elected president of the medical staff of St. Michael's Hospital in Texarkana. Other officers elected were Dr. Harold H. Short, vice president, Dr. Betty Ann Lowe, secretary. Named to serve on the executive committee with the officers were Dr. Henry M. Carney, Dr. Charles A. Thompson and Dr. Elmer Davis.

**Contributors to American Medical Association
Education and Research Foundation**

Month of November, 1962		
Dr. George Allen	Fort Smith	\$ 25.00
Dr. Hugh Edwards	Searcy	100.00
Dr. E. M. Gray	Mountain Home	50.00
Jefferson County Medical Auxiliary	Pine Bluff	10.00
Dr. J. F. Kelsey	Fort Smith	25.00
Dr. F. M. Lockwood	Fort Smith	10.00
Medical Center	Siloam Springs	75.00
Dr. R. Murphy	El Dorado	7.50
Dr. George R. Peebles	Gurdon	10.00
Dr. Warren Riley	El Dorado	5.00
Dr. Wilma R. Sacks	Fayetteville	25.00
Mr. Charles W. Stewart, Jr.	Fayetteville	10.00
Union County Medical Auxiliary	El Dorado	5.00
Dr. Jack T. Walker	Magnolia	10.00
Washington County Medical Society	Springdale	10.00
Washington County Medical Society	Springdale	10.00
		<hr/> \$387.50



BOOK REVIEWS

SYNOPSIS OF ROENTGEN SIGNS, by Isadore Meschan, M.A., M.D., Professor and Director of the Department of Radiology at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina; formerly Professor and Head of the Department of Radiology at The University of Arkansas School of Medicine, Little Rock, Arkansas illustrated, pp. 436, published by W. B. Saunders Company, Philadelphia and London, 1962.

This textbook of radiology is in outline form. It is filled with interesting diagrams and x-ray reproductions. It will be of considerable interest to students and to practicing physicians. The book itself is not encyclopedic in scope and is not intended to be; it comprises only 436 pages. The book is made up in rather a conventional manner. There is a discussion of x-ray fundamental and technique. There is an excellent discussion of bones and joints. The radiology of the heart is very interesting, particularly the section on congenital heart disease. Of course, there is a more than adequate description of the urinary tract and gastrointestinal canal. There is an adequate discussion of obstetric radiology. Dr. Meschan was a former professor at the University of Arkansas School of Medicine and, as such, his book will be of more than passing interest to Arkansas physicians. It is heartily recommended. AK

ATLAS OF CLINICAL ENDOCRINOLOGY, Second Edition, by H. Lissner, A.B., M.D., Clinical Professor Emeritus of Medicine and Endocrinology, University of California School of Medicine, San Francisco, Calif.; former President, The Endocrine Society, and Roberto F. Escamilla, A.B., M.D., Clinical Professor of Medicine, University of California School of Medicine, San Francisco, Calif.; Civilian Consultant and Chief of Endocrine Clinic, Letterman Army Hospital, San Francisco, Calif., pp. 489, illustrated, published by The C. V. Mosby Company, Saint Louis, 1962.

This Atlas of Clinical Endocrinology is a well written text organized in more or less outline form. It is accompanied by case histories with excellent illustrations and, as such, is of considerable value as a reference book. The text is quite inclusive. It has numerous references. It is heartily recommended as a reference to practicing physicians and medical students. AK

MALPRACTICE LAW DISSECTED FOR QUICK GRASPING, First Edition, by Charles L. Cusumano, Member of New York Bar, pp. 132, published by Medicine-Law Press, Inc., 42 Broadway, New York 4, N.Y.

This book is a synopsis of the relationship between the practice of medicine and the law. It is well written and indexed. It makes no pretense of being encyclopedic. It has included many facets of passing interest to the physician including the relationship of physician and patient, duties of physician toward the patient, common malpractice grounds, consent to treatment, professional liability, abortion, liability of nurses and other topics. Considering the lively interest of the people in medical-legal

matters, this book is recommended to all practicing physicians. Interns and medical students would do well to become acquainted with the facts contained in this volume.

AK

INFECTIOUS DISEASES OF CHILDREN, by Saul Krugman, M.D., Professor and Chairman, Department of Pediatrics, New York University School of Medicine, New York, N.Y.; Director, Pediatric Service, Bellevue Hospital Center, New York, N.Y.; Director, Pediatric Service, University Hospital, New York, N.Y., and Robert Ward, M.D., Professor and Head, Department of Pediatrics, University of Southern California School of Medicine, Los Angeles, Calif.; Physician-in-Chief, Childrens Hospital, Los Angeles, Calif., Second Edition, Illustrated, pp. 398, published by The C. V. Mosby Company, St. Louis, Mo., 1960.

This book is well written but does not contain any important information not ordinarily contained in a standard textbook of pediatrics. It is reasonably complete. The adenoviral infections, for example, are discussed. There is a brief discussion of aseptic meningitis and the rarer diseases as Toxoplasmosis are briefly treated. The book has a fair number of illustrations and charts. Some of the photographs are in color and these are excellent. No unusual information is included in the book. The more complete chapters usually deal with etiology, pathology, clinical manifestations, diagnosis, epidemiology, preventive measures, and the treatment of the various diseases. All in all, this textbook is well written, but it is too brief to be encyclopedic and it is too long to be a handbook. It is recommended to medical students working on a pediatric ward, although the book does not contain information not currently available in standard textbooks of pediatrics. AK

ANSWER—Electrocardiogram of the Month

RATE: 52 RHYTHM: Idioventricular

PR: _____ sec. QRS: .20 sec. QT: .60 sec.

INTERPRETATION: Abnormal. P waves are visible only occasionally, at long intervals. Idioventricular rhythm, marked prolongation of QRS and increased voltage of T waves which are rather narrow. Changes due to marked hyperkalemia.

COMMENT:

This patient had been followed for a number of months because of very severe hypertensive disease with evidence of marked renal disease. The tracing was made a short time prior to death and is typical of the changes associated with marked hyperkalemia.



Sponsored by Arkansas Tuberculosis Association

ROLE OF TOBACCO SMOKING IN CAUSATION OF CHRONIC RESPIRATORY DISEASE

Study undertaken in population group in Berlin, New Hampshire, revealed significant link between cigarette smoking and chronic respiratory diseases. Risk of disease doubled after 3,000 packs of cigarettes had been smoked, the equivalent of one pack a day for eight years.

DONALD O. ANDERSON, M.D.; BENJAMIN G. FERRIS, JR., M.D.; *New England Journal of Medicine*, October 18, 1962.

In a study of chronic respiratory disease undertaken in Berlin, New Hampshire, in 1961, the prevalence of various forms of respiratory disease according to age, sex, current tobacco smoking habits, and lifetime cigarette consumption was determined. A questionnaire supplemented simple tests of pulmonary ventilation in a probability sample of residents 25 to 74 years of age.

Subjects were assigned to one of the following categories: never smoked cigarettes; former smoker of cigarettes; and currently smoking 1 to 10, 11 to 20, 21 to 30, 31 to 40, or 41 or more cigarettes a day.

The approximate number of packages of cigarettes smoked during a lifetime was estimated from the age the subject began regular cigarette smoking.

DISEASE CLASSIFICATIONS

The disease categories were defined as *chronic bronchitis*, if a subject produced phlegm on at least four days a week for three months of a year for three years; *asthma*, if a subject had a history of bronchial asthma and it was still present (because asthma was usually associated with one of the other diseases, it was not analyzed separately); *irreversible obstructive lung disease*, if a subject had a history of wheezing or whistling in the chest and dyspnea not due to known causes; and *all chronic respiratory disease*, including all subjects who had at least one of the diseases listed above.

There was a regular increase in the prevalence of chronic bronchitis with age in men, ranging from 24.1 per cent in the age group 25-34, to 34.7 per cent in those 65-74. The age gradient in irreversible obstructive lung disease was irregular for both men and women.

The prevalence of chronic respiratory disease in men consistently exceeded that in women for each age group except that from 25 to 44; women in this age group had a slightly higher prevalence of irreversible obstructive lung disease. Irreversible obstructive lung disease appears to be more frequently combined with chronic bronchitis in men than in women. In women the latter may remain a pure disease, with little sputum.

Of the 532 men interviewed, 261, or 49.1 per cent, were currently smoking cigarettes, and 200, or 32.9 per cent, of 607 women were cigarette smokers.

INCREASED SMOKING—RISE IN RD

There was almost uniform progression in the prevalence of all chronic respiratory disease, chronic bronchitis, and irreversible obstructive lung disease with increasing cigarette smoking. Among men, the rate for all chronic respiratory disease rose from 19.7 per cent among those who had never smoked cigarettes to 87.7 per cent among those who smoked more than two packs a day. Among women, it rose from 17.2 per cent among nonsmokers to an average of 43.3 per cent among all those who smoked more than a pack a day.

The comparable rates for chronic bronchitis in relation to the number of cigarettes smoked were, for men, from 15 per cent among nonsmokers to 75.3 per cent among those who smoked more than two packs a day, and, for women, from 9.4 per cent (nonsmokers and ex-smokers) to an average of 27.3 per cent of those who smoked more than a pack a day.

Chronic respiratory disease in smokers increased above that of nonsmokers only when a

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PRO-BANTHINE® with DARTAL® Tablets, containing 15 mg. of PRO-BANTHINE and 5 mg. of Dartal (brand of thiopropazate dihydrochloride).

PRO-BANTHINE with PHENOBARBITAL Tablets, containing 15 mg. of PRO-BANTHINE and 15 mg. of phenobarbital.

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Research in the Service of Medicine

threshold of 3,000 packages had been passed, or the equivalent of one package a day for about eight years.

Despite age standardization, the risk of disease doubled after 3,000 packs had been smoked, and more than tripled after 18,000 packs. However, after standardization to life-time cigarette exposure, age was found to be no longer significantly associated with the presence of any disease in men; a *significant* association with age remained for irreversible obstructive lung disease in women.

LIFETIME SMOKING SIGNIFIED

Since the lifetime cigarette-smoking exposure was a function of age, current and past smoking habits and the age smoking began, it could logically be regarded as a composite of several variables. In men, however, after standardization to lifetime exposure, current cigarette smoking was still found to be *significantly* associated with the presence of chronic bronchitis but no longer with the presence of irreversible obstructive lung disease. After standardization to current cigarette-smoking habits, however, lifetime cigarette-smoking exposure was still found to be *significantly* associated with the presence of chronic bronchitis and *highly significantly* associated with the presence of irreversible obstructive lung disease. In women, however, standardization to either variable completely removed any significant association of the other variable to all forms of chronic respiratory disease.

RELATIVE RISKS

The greater relative risk of sickness and death from chronic respiratory disease in smokers as compared to nonsmokers has been reported in case-history studies of patients with chronic bronchitis and emphysema and by cohort studies.

In the present report the increased rates of disease have been expressed as relative risks on the basis of the rate in those who had never smoked as unity.

Pipe and cigar smokers were found to have a greater risk of disease than subjects who had never smoked tobacco. However, those who smoked cigarettes and a pipe or cigars did not have any increased risk of disease above that observed in cigarette smokers alone.

Certain evidence from this study supports the hypothesis that there may be a threshold beyond which cigarette smoking materially increases prevalence of chronic respiratory disease. The data indicate that it lies above 3,000 and below 9,000 packages or after eight years of cigarette smoking at the rate of between one and three packages a day. The precise threshold is not clear, and further studies are indicated.

The observation that cigarette smoking is clearly associated with the prevalence of chronic respiratory disease means that any demographic or epidemiologic study must standardize for its effect in some acceptable epidemiologic fashion. Nonsmokers may be the most suitable subjects in whom the effects of atmospheric pollution or occupational exposure to noxious dusts or gases should be studied.

ANSWER—What Is Your Diagnosis?

03-12-35 11 year old white male

Pain in the right hip with limitation of motion and muscle spasm.

DIAGNOSIS: Legg-Perthes disease or osteochondritis of the right femoral head.

X-RAY FEATURES: There is shortening and broadening of the neck of the right femur with minimal fragmentation of the epiphysis and roughening of the inner aspect of the acetabulum.

THE
JOURNAL
OF THE
Arkansas MEDICAL
SOCIETY

April, 1963

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**in severe respiratory infections
refractory to other measures..**

CHLOROMYCETIN[®]
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**for established
clinical efficacy against
susceptible organisms¹⁻¹⁴**



In Friedlander's Pneumonia^{3,13}

Although the prognosis in Friedlander's pneumonia is poor, treatment with CHLOROMYCETIN has shown a good response when susceptible strains of *Klebsiella pneumoniae* are incriminated.

In Hemophilus Influenzae Pneumonia^{3,4,13,14}

Because the invading organism is usually sensitive to CHLOROMYCETIN, this agent is generally effective in pneumonias caused by *H. influenzae*.

In Staphylococcal Pneumonia^{1-8,13}

CHLOROMYCETIN continues to remain effective against many resistant strains of staphylococci, and—alone or in combination with other antibiotics—should be considered when other antistaphylococcal drugs are ineffective.

In Acute Epiglottitis^{4,10,11}

This condition is most often caused by *H. influenzae*, most strains of which are sensitive to CHLOROMYCETIN. Therapy should be instituted at once, since the disease may progress from the first symptoms to a severe respiratory obstruction in four to six hours.

In Pneumonias Due to Gram-negative Bacilli⁹

Because of its broad-spectrum activity, CHLOROMYCETIN is often effective in pneumonias caused by sensitive strains of *Aerobacter*, *Proteus* of various species, *Paracolonobacterium*, and other gram-negative pathogens encountered with increasing frequency in serious respiratory tract infections.

In Staphylococcal Empyema¹²

The infiltrating lesions of staphylococcal empyema are often difficult to eradicate. While CHLOROMYCETIN should only be used when the infection has been resistant to treatment with other antistaphylococcal drugs, therapy with CHLOROMYCETIN, in conjunction with surgical procedures, will often bring favorable results.

CHLOROMYCETIN (chloramphenicol, Parke-Davis) is available in various forms, including Kapseals® of 250 mg., in bottles of 16 and 100. See package insert for details of administration and dosage.

Warning: Serious and even fatal blood dyscrasias (aplastic anemia, hypoplastic anemia, thrombocytopenia, granulocytopenia) are known to occur after the administration of chloramphenicol. Blood dyscrasias have occurred after both short-term and prolonged therapy with this drug. Bearing in mind the possibility that such reactions may occur, chloramphenicol should be used only for serious infections caused by organisms which are susceptible to its antibacterial effects. Chloramphenicol should not be used when other less potentially dangerous agents will be effective, or in the treatment of trivial infections such as colds, influenza, or viral infections of the throat, or as a prophylactic agent.

Precautions: It is essential that adequate blood studies be made during treatment with the drug. While blood studies may detect early peripheral blood changes, such as leukopenia or granulocytopenia, before they become irreversible, such studies cannot be relied upon to detect bone marrow depression prior to development of aplastic anemia.

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IMPORTANT FACTORS IN THE PREVENTION OF CORONARY DISEASE

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INCREASINGLY RELIABLE estimates of the prevalence and incidence of cardiovascular disease indicates that it is and will continue to be the leading cause of death. Actually coronary disease accounts for two-thirds of all types of heart involvement. In spite of so much discussion about coronary disease and the advantage of earlier diagnosis together with the recent progress in therapy, there has been no significant improvement in the morbidity and mortality from this condition.

We should face the fact that once this disease is recognized that it is difficult to alleviate the condition in a great number of patients. It is most important to make the diagnosis of the disease at the earliest time when only minimal symptoms and signs are present. If the patient becomes aware of the importance of the early symptoms, he may seek and follow medical advice more completely. If the condition were one in which treatment could be considered curative and the patient restored to good health, then a direct therapeutic approach with the advent of the symptoms would be the proper way to treat the patient. However, since the mortality is high and treatment not too satisfactory and realizing

that great disability can occur even with an early diagnosis, it becomes apparent that the need to prevent coronary involvement is of the highest urgency.

Coronary heart disease presents itself to the clinician either by angina pectoris, an attack of acute myocardial infarction, or by sudden death. In regard to the latter occurrence this complication will appear in one-sixth of all coronary disease and if one limits the group of patients to those of the male sex, the percentage would be higher. Since sudden death occurs within a matter of minutes, it is obvious that the only treatment possible for these patients would of necessity be those measures which are preventive in nature.

Acute coronary thrombosis constitutes the majority of patients with coronary disease. Since the highest mortality will occur within the first two to three weeks following the acute infarction, the best therapeutic measures should be instituted promptly and thoroughly. Perhaps as many as 20 per cent of those patients with acute coronary attacks will die within this period. Patients presenting angina pectoris may include those who can be diagnosed and treated sometime before pathological changes can occur in the heart muscle. If by the time it occurs there is coronary atherosclerosis, all one can do is to try to reverse the pathological changes of atherosclerosis in these people. To summarize this part of the

*The diagnostic electrocardiographic signs of left ventricular hypertrophy include the following: (1) *Increased voltage of QRS deflection with the R wave in lead V5 or V6 and S wave in lead V1 totalling 35 mm. or more, or voltage of R wave in V5 or V6 exceeding 26 mm.* (2) *ST segment and T wave abnormality in lateral V leads with ST segment often depressed and T wave inverted in V5 and V6.* (3) *Delayed onset of intrinsicoid deflection over left ventricle so that it is .055 - .08 sec. instead of the normal time of .035 - .055 sec.* (4) *Increased duration of QRS complex may or may not be present.* (5) *Left axis deviation is usually evident.*

discussion, one can conclude that there are a large number of patients with coronary disease in whom medical therapy can help only partially. The proper approach is to try to control the disease before overt manifestations appear. Since the vascular changes must have been present sometime prior to development of symptoms, it is only logical to assume that prevention should begin prior to the appearance of symptoms.

In studying the epidemiology of coronary disease, characteristics of people who develop coronary artery involvement become evident. With this knowledge it is possible to institute a therapeutic program at a time in life when there is hope of success in improving the vascular situation in those patients who are considered rather high risks for developing coronary disease. Many years will have to pass before one can be sure of the efficacy of such preventive medicine. However, there is no question about the value of following these preventive measures since they are perfectly consistent with good health practices in general. It is therefore of the utmost importance to gather as much information as possible about those characteristics which appear to categorize a patient as being prone to develop coronary disease. Toward this end, several epidemiological studies have been in operation investigating populations for factors capable of predicting the development of this disease. Such investigations include the Framingham Study centered in Framingham, Massachusetts as well as those involving selected groups of people in other communities. Certain deductions in these population studies can now be considered of sufficient importance to allow some documentation.

Serum Cholesterol

There is sufficient evidence available to indicate that serum cholesterol levels are definitely related to the development of coronary disease. Animal experiments show an increased frequency of atherosclerosis in the presence of elevated serum cholesterol. In addition, the principal constituent of the atherosclerotic plaque is cholesterol. In the Framingham study, the average cholesterol was in the neighborhood of 220 mgm percent. Less than 5 percent had a level below 160 mg. percent and likewise 5 percent had cholesterol levels over 280 mg. percent. The serum cholesterol level in adult males appeared to be fairly constant, between age 30 and 60, whereas in adult women the level rose from an average of

195 at the age of 30, to 250 mg. percent at the age of 60. Further analysis revealed that the level of cholesterol in the serum was certainly higher in those who have developed coronary disease than in those who were free of it. In the Framingham Study at the end of eight years of observation in men with serum cholesterols below 200 mgm. percent, the rate of coronary disease was less than half of that of the total population while in the group with cholesterol levels of 260 mgm. percent and higher, the rate was almost twice that of the total population. It can be stated that the lower the serum cholesterol, the lower the risk of developing coronary disease.

Many factors have been shown to influence the level of the cholesterol in the serum: emotional stress, dietary constituents, physical activity and various hormones among others. The relative risk associated with progressive elevation of the serum cholesterol level appears to decrease with advance in age. The significance of elevated cholesterol levels in younger persons is thus enhanced. If the cholesterol level is lowered by diet or direct therapy, it does not mean that the decreased risk of developing coronary disease such as occurs in people who have inherently had low cholesterol levels, is automatically acquired. It does seem reasonable however, to advocate measures which produce lowered serum cholesterol, especially if the individual shows other highly susceptible characteristics for the development of coronary disease.

Blood Pressure

Clinical and experimental evidence has demonstrated that arteriosclerosis is accelerated and aggravated by an elevated blood pressure level. Efforts to lower blood pressure levels are undertaken to alleviate development of heart enlargement, congestive heart failure and other associated symptoms. Results of the epidemiological studies would indicate less consistency with the finding of the elevated blood pressure than with the increased cholesterol. In the Framingham Study the average blood pressure varied from 135/80 for men of 30 years of age to 150/87 for men of 60 years. The rise in blood pressure for women was somewhat greater. People with systolic blood pressures below 120 developed one-fourth of the amount of coronary disease than would have been expected. However, the group with systolic pressure of 180 or over, developed over twice the amount of coronary disease ex-

pected. Thus there was a great increase of risk of this complication with this rise of blood pressure and this was particularly true among men 45 to 62 years of age. The same experience appeared to apply to an increase of diastolic pressure. In the Framingham Study in regard to coronary disease, the conclusion could be drawn that those people who were classified as normotensive had approximately one-half the expected risk while hypertensives had a risk of one and one-half of that to be expected. It should be stated that in this study by "normotensive" was meant that the blood pressure was under 140/90. In the "hypertensive" group the systolic was 160 mm., or over, and/or all diastolic pressures of 95, or over. The borderline category included all the others.

Left Ventricular Hypertrophy

When hypertension was associated with the electrocardiographic pattern of left ventricular hypertrophy* a higher incidence of coronary heart disease occurred than with hypertension alone especially in men aged 40 to 59 years. An explanation for this finding is the possibility that these people originally had subclinical coronary disease at the time of entry into the study but more probably the electrocardiographic abnormality reflected either longer standing or a more severe degree of hypertension.

Overweight

It has been known over the years in life insurance statistics that there are increased death rates from heart disease with obesity. Perhaps obesity in itself when everything else is perfectly normal may not enhance the risk very much but because of the frequent association between obesity, increased blood pressure and high serum cholesterol level, reduction in weight is advisable because of its general favorable effect on all these factors.

Diet

A controlled study of the effects of a diet high in unsaturated fats was carried out by Dayton and Pearce on middle aged men living in a Veterans Administration Unit. A control group received a conventional diet of 2,400 calories with 40% of the calories derived from fat. The experimental group received a diet of similar composition except that the fat had a much higher unsaturated fatty acid content. The experimental diet showed an average cholesterol drop of 29 mg.

percent for a mean baseline value of 232. This decrease was maintained over a period of up to 16 months although the plasma total lipids showed no consistent change. In the same period the plasma cholesterol of the control group had risen 15 mgm. percent and there was a rise of total lipids from 840 to 970.

Another careful study by Barrow and co-workers was performed on 684 Trappist Monks who obtained 28 percent of their calories from fat and 1,253 Benedictine Monks who obtained 47 percent of calories from fat, in order to assess the prevalence of atherosclerotic complications in these age-comparable groups. They found that the Benedictines with their high fat diet showed historical, physical, or electrocardiographic evidence of atherosclerotic complications in 26 cases (2.1%) in contrast to only 3 Trappists (0.4%) who had low fat intake. An additional 36 Benedictines (2.9%) demonstrated non-specific abnormalities, whereas 14 Trappists (2.0%) showed similar findings.

There is little doubt clinically that the use of a high unsaturated fatty acid dietary regime is a logical step in protecting patients from coronary artery involvement, particularly those who have characteristics which appear to put them in the coronary-prone category.

Other Considerations

These points include the problem of excessive smoking which appears to be correlated with a higher incidence of coronary disease. Excessive emotional stress is a large factor also but it is hard to decide which of these two considerations is the more important since they often occur in the same individual. Normal physical exertion and exercise apparently provide some beneficial effect on coronary disease.

Cigarette Smoking

Combined study was undertaken relating cigarette smoking to the development of coronary heart disease in two population groups: Male civil service workers, age 39-55 (Albany Study) and a general population group age 30-59 (Framingham Study). In these investigations cigarette smoking was associated with an increased risk for the development of myocardial infarction and death from coronary disease. The standardized morbidity ratios for myocardial infarction in the two studies were significantly higher for cigarette smokers than for non-cigarette smokers. The risk of developing myocardial infarction was

very similar in those who had never smoked, smoked cigars or a pipe, or had given up smoking. Heavy cigarette smokers ran over three times the risk of developing an infarction or dying of coronary disease. The effect of cigarette smoking appeared to be independent of blood cholesterol level, blood pressure and weight.

Emotional Stress

Russek did a study on the emotional stress in coronary heart disease in a group of American physicians and dentists. He had noted that coronary heart disease in young adults is often associated with emotional stress of occupational origin. He decided to do a study of the prevalence of the disease among professional groups encountering varying degrees of daily occupational stress. He took the following four groups of physicians (listed in the order of increasing stress): dermatologists, pathologists, anesthesiologists, and general practitioners. He put the dentists in the category of general practitioners. With a questionnaire survey to 5,000 male subjects with 1,000 in each of the above four categories he found a close correlation between the prejudged stressfulness of the occupational groups and the actual coronary heart disease prevalence. This was observed in every age decade from 40 to 69 years of age and was found to be highly significant statistically.

Physical Activity and Exercise

It is difficult to document the accuracy of recently held opinions to the effect that limitation of physical activity may be a factor in the causation of coronary heart disease. Spain and Bradless did a postmortem study on "normal" white men aged 30 to 60 years who died suddenly from accident, homicide, or suicide. They found no significant difference in the degree of coronary atherosclerosis in the 100 patients who were classified as having sedentary occupations as compared to the 107 who had been engaged in physically active work. The reported greater tendency for persons in sedentary occupations to have myocardial infarction and to die of it at a younger age than those in physically active occupations, could not be explained by significant differences in the degree of coronary atherosclerosis at comparable age levels.

In contrast, several British reports have shown an excess of mortality from coronary heart disease with higher social class of occupation and also with decreasing physical activity of work

among men in England and Wales. Breslow and Buell in California studied the relationship between the diagnoses of heart disease as expressed on the death certificates and the classification of physical activity as determined by the occupations. Like the British investigators, they also found that there was an excess of coronary disease mortality in those with sedentary positions over those who were doing heavy work.

Perhaps the difference in the opinions expressed in regard to the factor of exercise and physical activity may be explained by the fact that autopsy studies as ordinarily done, deal primarily with the major branches of the coronary arteries. Symptomatic coronary disease, on the other hand, probably depends mainly on the balance between the rate of narrowing of major branches and the rate of widening of collateral pathways. Perhaps physical activity tends to protect against coronary insufficiency in the sense of ischemia of the myocardium sufficient to produce symptoms and not against atheroma of the major branches. The main protective advantage derived from physical exertion and exercise could be in the development of collateral coronary circulation. Clinically it is felt that proper and regular physical activity is generally beneficial to the patient and good preventive therapy. People who tend to be indolent and have a low normal physical output do not appear to do as well as those who are normally active.

Combination of Factors

As the characteristics associated with higher risk become combined in any one person, the susceptibility to coronary disease is greatly enhanced and one can then speak of distinct coronary susceptibility. When a patient with elevated blood pressure and left ventricular enlargement either by electrocardiogram or by x-ray or both is also found to have an elevated serum cholesterol, the risk for the development of coronary involvement is very enhanced. Men who are 40 to 60 years of age with no electrocardiographic abnormality, normal blood pressure and low normal serum cholesterol levels, have only one-eighth the standard risk for this age group. If the same cholesterol level were higher but still just within the normal range of 250 mg. percent, the risk is increased to one-half the standard risk. If all three factors were in the abnormal range then the risk is four times as much as in the standard group.

Summary

Preventing coronary artery disease is the best means of treatment of this condition since once the disease is recognized it is difficult to alleviate it in a great number of patients.

Epidemiologic studies of coronary disease have revealed specific characteristics which favor the development of coronary artery involvement.

Knowledge and therapeutic use of these coronary-prone factors should result in improvement of the vascular situation in patients considered to be high risk cases for development of coronary disease.

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IMPLICATIONS FOR PSYCHIATRIC NURSING IN A COMPREHENSIVE PATIENT CARE CONCEPT

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A FEW NURSING LEADERS are directing their efforts toward formulating a testable theory of nursing. One of these profound thinkers is Dorothy Johnson. She offers a theory placing nursing's specific responsibility in patient care on the maintenance or re-establishment of a moving state of equilibrium throughout the health change process.¹ A solicited response to this theory from the famed researcher of professions, Esther Lucile Brown of the Russell Sage Foundation, brought forth this statement:

*Should nursing decide that it had a specific responsibility for helping patients maintain equilibrium in regard to needs, it would have to embark on a kind of professional education that would make current efforts look elementary indeed. Physical sciences would not be enough; neither would social sciences. Required, in addition, would be a profound humanistic approach to people as they are in their manifold differences, with their manifold sources of strength and weakness. Otherwise, the profession would continue to make decisions based on the value of the middle-class Anglo-Saxon culture from which it so largely stems.*²

To me, these statements embody the implications inherent in a comprehensive patient care concept of comprehensive nursing care for the person suffering from or with a mental illness. Because a person is a complex unity, his care will need to reflect the same complexity. No one person can meet all of a patient's needs all of the time, so a complicated but not necessarily confused constellate or team representing varying degrees of competency and expertness is required if we are to achieve comprehensive patient care.

Nursing personnel alone can not provide for or give comprehensive care; nursing does to a greater extent than any other patient-centered service,

provide the coordination needed for all forces to be brought to bear upon the patient and his welfare. Nursing is only one element within the total framework but a vital one; without it any other discipline trying to assist a mentally-ill patient could well fall short of its goals. When one realizes what this means, the implications are so staggering as to be almost overwhelming. Yet, the horizon for better care for the mentally ill was never brighter. With a continuing increase in the number of nurses seeking educational preparation for psychiatric nursing at the master's or doctoral level, the inclusion of psychiatric units in the general hospital system, night and day units, mental health clinics and the like, barring a major catastrophe, the future is indeed hopeful.

There remains the problem of providing a better attitude toward mental illness in the general population and among the nurses graduating from the majority of our schools of nursing. From numerous studies that have been done and from reports of psychiatric-mental health consultants we know that the rank and file of our graduate nurses are not free from the handicapping biases that stand in the way of providing good nursing for the mentally ill. In this, nurses merely reflect the attitudes of the society from which they come. The inculcation of sound principles of mental hygiene and an understanding of dynamics of behavior should be as important a part of teacher education as fundamentals of mathematics, and every nurse in the school system could increase her effectiveness by obtaining preparation in public health-mental health nursing in order to strengthen efforts to promote mental health.

With this introduction to the topic, a few thoughts are presented that probe into the issue raised in this paper—implications for psychiatric nursing in a comprehensive patient care concept.

The success of our interaction with a patient depends in great measure upon how well we understand that person's needs. Tools and processes are very helpful but without understanding

¹ "Some Reactions . . ." *Am. Journ. Nurs.* 11 (December, 1961) 96.

² *Ibid.*, 97.

or discernment they are barren means that do not contribute to the goals for which their use was intended.

We can learn a great deal about a patient in a short time if we organize our approach. Just as we need to organize our efforts in learning, studying, directing or researching, so must we have some systematic approach to our attempts to understand the person and this involves more than the brief medical history, sociological data and tentative diagnosis found on a chart. Nurses must go far beyond this meager information, useful though it be.

Some criteria is necessary for satisfactory assessment. This paper does not offer such criteria but proposes a frame of reference to assist a nurse to make an initial but not cursory judgment of a patient's needs. At best, the human complex is difficult to understand, particularly in our heterogeneous population, and to approach it in a random sort of way is to run the risk of expending great energy with a resultant small measure of success.

The frame of reference I will use should not be considered from an academic viewpoint but in terms of trying to understand the living patient as he appears before us. I like to use a simple formula and proceed from there. $bx\ dx\ cx=p$.
 b = biological or physical component common to man

d = individual difference component

c = cultural component

x = deviations from norms

p = person

Each component is more than another additive; these are fundamental interacting elements that affect one another in profound ways. Within the components there are many variables; some of the variables are within normal limits for a particular personality, other variables may be deficient or excessive (x factors).

I shall use this simple formula as a base for a nurse's assessment of the patient's condition as it relates to meeting his needs in a comprehensive way.

We are quite aware of the normal needs of a healthy person as these needs relate to this basic physical makeup — nutrition, exercise, rest, recreation, elimination, adjustment to natural forces. We know the range for normal temperature, pulse, respiration, metabolism, blood pressure; condition of skin, hair, nails, mucous membranes,

sensory organs and the like. X-rays show us internal organs and structures; laboratory tests reveal chemical states and reactions of organic cells. Additional facts are supplied by the findings on electrocardiograms, encephalograms, and numerous other diagnostic aids. All of these contribute knowledge (the " b " in the formula) to the physiologic functioning of the body. The nurse has but to read and relate the reports to her objectives for patient care, which can be done rather quickly. In fact, the doctor will usually call her attention to important factors. The nurse will keep in mind that there are physical pathologic conditions that carry with them concomitant reactions or behavior patterns that will probably disappear when the abnormal physical condition has been brought under control. In these instances, she will support the patient during therapy and will not behave toward him as though his behavior could be changed by a predominantly psychological approach. She will patiently support him while observing him for expected changes.

In attempting to assess individual differences in a person (the " d " in the formula), considerable research has and is being done, the results of which are available to assist us. Psychologists can give us some indication of the intelligence level, the emotional maturity, the occupational and recreational preferences of a person; his attitude toward authority figures, his sense of belonging, his biases and prejudices, to name a few. The person's own story, his verbalizations, reactions and movements add to this knowledge of him. In this area of attempting to understand the individual differences that are an integral part of human nature, we have made considerable progress. For a particular patient, this information will have been gathered and interpreted by experts and again, the data needed by a nurse for a better understanding of the patient is available. Valuable assistance can be had from the psychologist in relating the findings to the patient's potential and the nursing plan.

With all of the information thus far obtained about a patient, we are not at this point capable of providing an adequate nursing care plan for him because we are in possession of about half of the knowledge we need. The least understood component is the cultural background (the " c " of the formula). This factor would not loom so large if we were a homogenous people. We pride

ourselves on being the melting pot of the world and the result is a mixture as well as a compound that taxes our understanding heavily when we try to nurse the mentally ill patient back to health. Some of the things we need to know are the ordinary daily routines of the patient, how he spends a typical day or week, his food habits, personal hygiene practices, his pronounced likes and dislikes, the family background, community background, social and religious background, the human relationships that contributed to his adjustment or stresses, his biases and prejudices. We must try to understand a person not only in relation to his acts but also in relation to his life pattern. Personality expresses itself through behavior and is comprised of basic human nature, individual differences and social reaction and interaction. It has often been said that if one could only understand the reason or motivation for behavior reactions, all the manifestations of it would appear quite logical. It would make the task of directing behavior into healthier channels a less difficult task.

The qualified social worker, and there are all too few of them, does attempt to obtain some of the information needed for the cultural component. This information is obtained from the family, relatives, friends and various associates of the patient but the relevancy of this information or the use which is made of it in planning nursing care seems to be a missing part of the plan. Inclusion of this component would enhance our efforts and increase the measure of success we work so hard to attain.

Perhaps more studies employing the techniques used in anthropological research and applied to the heterogeneous population groups that make up our contemporary society might help us in our efforts to understand and treat the whole person. Every resource available should be brought to bear upon mental health problems. Familiarity with sociological studies should also prove helpful.

The utilization of findings such as those mentioned in the preceding paragraphs implies adequately prepared nurses who can discriminatingly plan and effectively implement a course of action for the kind of care the patient needs to restore him to optimum health. Such a nurse, it seems to me, needs to possess adequate basic preparation, good experience and specialized clinical education at the graduate level. A corps of such elite nursing practitioners, members of an

interdisciplinary group devoted to the restoration of a patient's mental health, should be able to provide for comprehensive care for psychiatric patients. Such a corps is slowly growing; however, the attempt to understand the weighty influences of those elements in the makeup of personality that are not primarily psychological has not been given adequate attention in nursing until quite recently. Large numbers of nursing practitioners have not been indoctrinated with mental health or total health concepts and this omission is a serious impediment to providing comprehensive patient care in any field of medicine. That is why Brown stated that a profound humanistic approach was needed that would make "current efforts look elementary indeed."

The need for understanding cultural differences can be exemplified with a few illustrations. Brown states that there is probably little question on the universality of psychobiological needs but how to help an individual patient meet them in ways acceptable to him poses a serious problem. She says

For example, a Hindu, who needs a high protein diet, finds himself in an American hospital. If he is repeatedly served beef, which his religion denies him, he will either forego the protein or suffer the psychological discomfort that comes from feelings of guilt. For years, British nurses tried to get Arab peasants to rest by lying stretched out in comfortable beds. Once a nurse's back was turned, the patients curled up in balls on the hard floor. Finally, insistence upon bed rest was relaxed. Needs may be universal in their biological aspects, but their cultural manifestations and the psychologically and socially accepted ways of satisfying them vary.¹

Another example familiar to all of us is the lack of privacy afforded mentally ill patients. Among women in particular, this can aggravate their maladjustment. How many of us have passed by an exposed toilet and heard a patient's screaming voice, clapping hands, and stamping feet to beg the approaching footsteps to retreat. Not only is this added tension unfavorable to mental health; it is also detrimental to physiologic processes.

In a society, too, where a single or twin-bedded

¹ Brown, "Some Reactions;" *Loc. cit.*

room is the rule, how long does it take to learn to rest and sleep in a crowded open ward?

Brown,² in her book, *NEWER DIMENSIONS OF PATIENT CARE*, gives the following quotation from van Velde, *THE BIG WARD* (fiction):

"So merely because she is short of money she is compelled to sacrifice her privacy forever? Don't you realize that this is the most dreadful thing that can happen to anybody? Whatever she does, there will always be people watching her. Everyone feels the need to be alone at some time or other . . ."

There is, of course, need for security measures; however, present day inventions and some renovations in existing structures, could easily provide for a measure of privacy for the patient while permitting satisfactory observation by nursing personnel.

To provide comprehensive care implies more than meeting the patient's obvious psychobiological needs. It also implies respecting those personal preferences and habits that are an integral part of his normal personality and that may not seem to be related to the cause or cure of his mental illness. It means using such preferences, habits, and beliefs therapeutically in order to hasten his recovery.

Sawatzky and Hardin¹, among others, point out that recovery from mental illness is more rapidly advanced if we structure the environment as closely as possible to wholesome daily living; if we treat the patient with intelligence and the respect due him in as normal a relationship as possible. They also say

"Psychiatric nurses have been taught to recognize pathologic responses in the patient. Psychiatric nursing often focuses on the patient's maladaptive behavior. When this occurs, nurses tend to be preoccupied with the ebb and flow of the patient's disordered behavior . . ."

² Esther Lucile Brown, *Newer Dimensions of Patient Care*. New York: Russell Sage Foundation, 1961. p. 44

¹ Gordon Sawatzky and Harry Hardin, "Making the Most of the Patient's Ego Assets"? *Nurs. Outlook* IX (Nov. 1961) 695.

² Abbott, *WHAT'S NEW*. (April-May, 1961) 22.

"A philosophy of nursing care, distorted by an undue concentration on symptoms, tends in practice to maintain or increase the patient's disordered behavior . . ."

"An essential part of psychiatric hospital treatment must be the deliberate development of plans for nursing care that take full account of the patient's non-disordered behavior. This involves stimulating in nursing personnel a fuller awareness, recognition and use of the patient's personality assets and healthy functioning in his treatment."

If the intent of milieu or any other therapeutic measure in treating mental illness is that "the patient must feel from the beginning that the whole purpose of all the resources brought to bear on his illness is to see that he returns to the community with maximum personal and social function"² then the conditions which support the therapy should conform as closely as possible to those elements in his cultural background which will assist in attaining the objective.

Changing patterns of care, particularly the utilization of day and/or night hospitals should make it increasingly possible to attain this objective. A great measure of the success, however, will depend upon how well the clinical nurse specialist understands and provides for comprehensive nursing care for each person suffering from mental illness. Thank you.

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Consolidated Veterans Administration Hospital
North Little Rock, Arkansas
March 8, 1962

EFFECT OF ALLOXAN ON SYNTHESIS OF URIDINE NUCLEOTIDES

Stuart Harris*

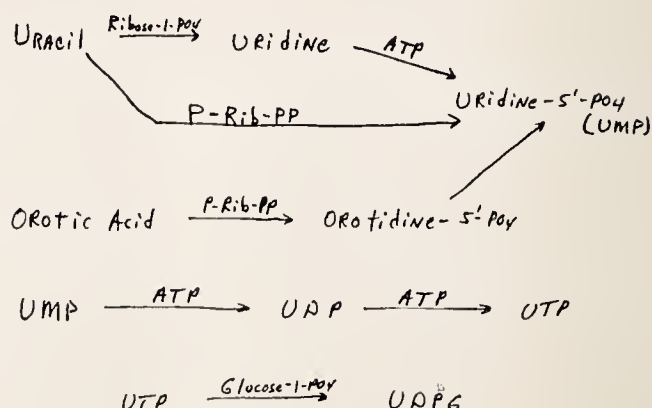
ALLOXAN CAUSES DIABETES in experimental animals when injected in proper dosages. Besides injuring the beta cells, doses slightly higher than the diabetogenic dose affect the liver and kidney cells as well. Although it is very widely used to produce diabetes in experimental animals, the mechanism of its cytotoxic action is not known.

Uracil is a pyrimidine base which is quite important in the metabolism of the body. It is necessary for the synthesis of RNA and for the synthesis of many coenzymes which are essential for the metabolism of the cell. Alloxan and uracil are quite similar in structure. This similarity of structure suggested that alloxan might exert its effect through interference with uracil metabolism.

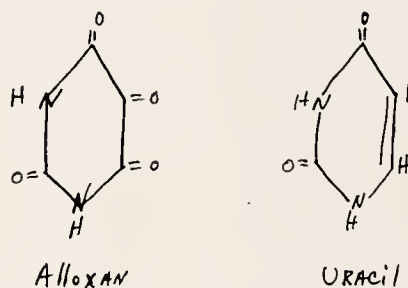
Uridine nucleotides may be synthesized either from uracil or from orotic acid. The products we were most interested in were UTP and UDPG. (See Chart.)

The enzyme source consisted of the soluble supernatant obtained from rat brain homogenate in 0.25M sucrose after centrifugation at 100,000xg for one hour. To this enzyme preparation we added radioactive uracil, ribose-1-P, and an appropriate energy source. After incubation, the reaction products were analyzed by separating them on Dowex-1 formate ion exchange column with a formic acidammonium formate elution system. Aliquots of the eluants were assayed for radioactivity. Characterization of each compound was made by reference to chromatographic behavior of known samples.

We first added alloxan to the incubation medium in a concentration of $1 \times 10^{-3}M$. The amount of radioactivity found in all products produced from the labeled uracil after 90 minutes of incubation in a control experiment without alloxan was about 60,000 c.p.m. With alloxan, the radioactivity present in the products made from the radioactive uracil amounted to only 30,000 c.p.m., an inhibition of 50%. The inhibition is even more dramatic in the production of UTP: the amount of UTP produced in the pres-



Metabolic Pathway of Uridine Nucleotide Synthesis



ence of alloxan was only about 1/10 of that present when incubated in a control experiment without alloxan. In addition, when alloxan is added to the incubation medium, a new peak, labeled compound "X", is encountered. The amount of this compound present in a control situation without alloxan is negligible.

It was found that alloxan lowered the pH of the incubation medium from 7.1 to 6.9. It was therefore necessary to determine whether the results we obtained were due to a lowering of the pH of the incubation medium. We found the system to be active in converting radioactive uracil to the uridine nucleotides between pH's of 6.9 and 7.4. We therefore concluded that the inhibition of the system observed when alloxan was added was not due to a change in the pH of the medium.

It was next decided to determine the effect of different alloxan concentrations on the production of uridine nucleotides from radioactive uracil. Alloxan in concentrations of $10^{-5}M$ and

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10-4M was relatively ineffective in the inhibition of uracil metabolism. Alloxan in a concentration of 10-2M gave almost complete inhibition of UTP and UDPG production. Compound X is again present. From this experiment we concluded that the minimum effective concentration of alloxan for inhibition of uridine nucleotide production in our system was 10-3M.

A short experiment was next run to determine whether the results obtained were due to a disturbance in the ATP regenerating system. Analysis of the eluted fractions by spectrophotometer revealed that there was no difference in the amount of ATP present in the control and the inhibited systems. It was thus concluded that the ATP regenerating system was not disturbed by the addition of alloxan to the medium.

Lazarow and co-workers have suggested that the action of alloxan might be mediated through combination with free sulfhydryl groups, which are essential for some enzymes. It was therefore decided to test the effects of several known sulfhydryl inhibitors on our system to determine if they gave results similar to those seen with alloxan. The compounds chosen were iodoacetamide, parachloromercuric benzoate, and N-ethyl maleimide. Alloxanic acid was also used. Alloxanic acid is the breakdown product of alloxan and according to one investigator is a strong sulfhydryl inhibitor.

When alloxan is added to the system, the UTP peak is greatly diminished, while the UDPG peak is almost entirely absent. A new peak is seen (compound X). When alloxanic acid is added, the situation is not significantly different from the control situation. The areas of the UTP and UDPG peaks are quite similar. Finally, when iodoacetamide, one of the known sulfhydryl inhibitors, is added to the incubation medium, the picture it presents is quite similar to that brought about by alloxan, with a decrease in the size of the UTP peak and a new "X" peak. With the exception of the parachloromercuric benzoate which inhibited all phases of the system, the other sulfhydryl reagents gave chromatographic patterns qualitatively similar to that of alloxan inhibition. From this experiment it was con-

cluded that alloxan probably exerted its action on this system by affecting the sulfhydryl groups of the enzymes involved.

The next step was the localization of the specific metabolic site involved. To achieve this, it was necessary to identify "compound X". It was suspected that "X" was probably UMP-5' from the position of the peak in the elution scheme used on the ionexchange column. However, there was a possibility that it might be one of the cyclic nucleotides UMP-2'-3' or UMP-3'-5'. The peak was further characterized as UMP-5' by paper chromatography and radioisotopic scanning. A sample of peak "x" was chromatographed against the previously mentioned nucleotides in three different solvent systems. In all three of these solvent systems, "compound X" moved with UMP-5'. From these results we concluded that the most sensitive step was the one involving the phosphorylation of UMP to UDP. To determine if the subsequent steps were at all affected, we did a short experiment utilizing cold nucleotides and analyzed the products spectrophotometrically. From this experiment it was concluded that alloxan did not affect the reactions converting UDP to UTP or UTP to UDPG.

Experiments with supernatants from the rat kidney gave results similar to those obtained with the brain system.

In conclusion, it was found that alloxan inhibited the production of uridine nucleotides from radioactive uracil in a rat brain high speed supernatant system. The minimum effective concentration was 10-3M. Alloxan preferentially affected the step between UMP and UDP, apparently complexing in some way the sulfhydryl groups of the phosphokinases involved in this step. It was effective in brain and kidney systems. Work is planned to determine whether this might be the mechanism of alloxan's cytotoxic action.

This research was carried out between June 10, 1962 and September 10, 1962, in conjunction with Dr. E. S. Younathan of the Department of Biochemistry and with Dr. J. E. Stone of the Department of Pharmacology, University of Arkansas School of Medicine.



URETERAL CALCULI: Evaluation of Management

Lee A. Martin, M.D.; Edward E. Estes, Jr., M.D.,
and James W. Headstream, M.D.

URETERAL STONES COMPRISE a large part of the practice of Urology. There is certain information one would like to be able to give to the patient when first seen with an ureteral calculus. Standard rules of management are seldom applicable since we are dealing with a disease in which the natural history of stones affords the knowledge that many are spontaneously passed. It is difficult to inform a patient as to his exact possibilities of spontaneous passage or surgery.

Some questions that arise are as follows: (1) Should we wait for spontaneous passage, and, if so, how long? (2) What size stone is likely to pass and what position in the ureter influences this thought? (3) Should we operate earlier for stones in the upper ureter than for stones in the lower ureter? (4) What is our expected percentage of successful extraction in endoscopically managed stones? (5) If we fail at extraction cystoscopically, what percentage is successfully extracted at the second manipulation, and how long should we wait before repeat manipulation?

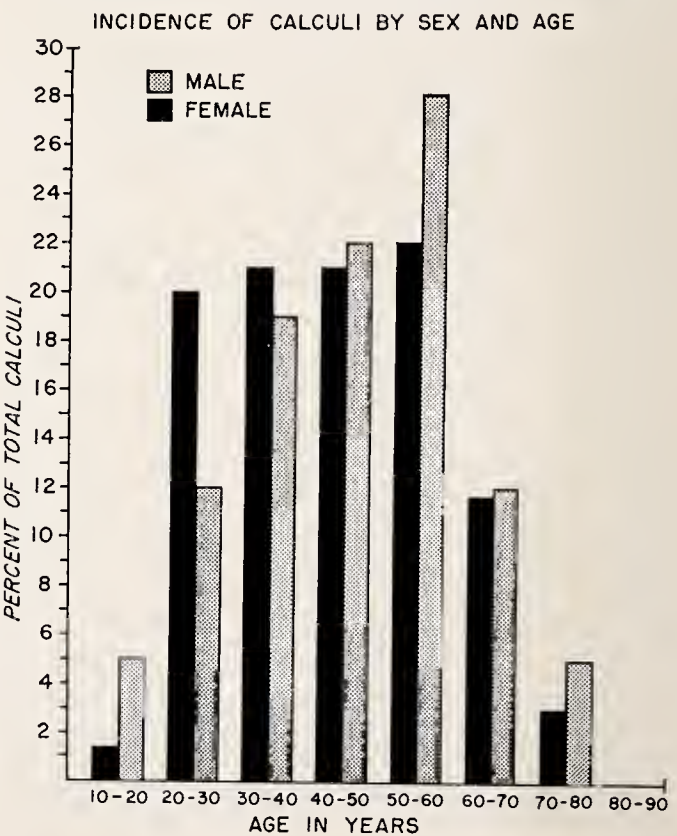
This study is an effort to find some of the answers to the above questions of stone management in 411 patients with 429 calculi. These patients include only those having enough difficulty requiring hospitalization and not the large number of out-patients where calculi passed spontaneously.

There was a past history of previous passage or surgical removal of ureteral calculi in 19.2%.

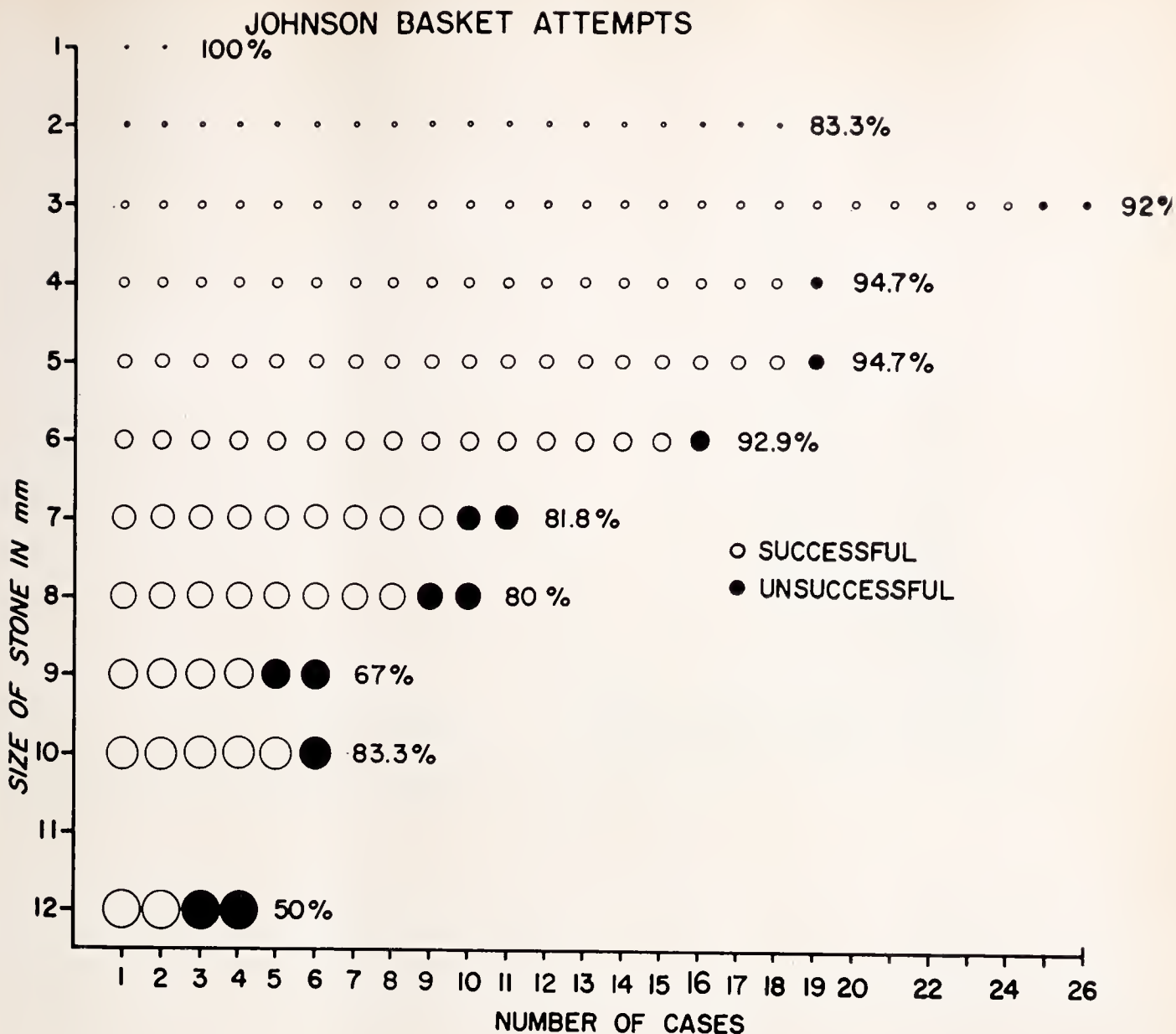
This is higher than the 8.8% reported by Prince and Scardino¹ and the National average of 10%, probably due to the deletion of the spontaneously passed stones in our out-patients.

It was interesting to note that 29% of the patients had no microscopic hematuria on the routine urinalysis done on admission. Only 9% of the patients had temperature above 100 degrees prior to surgery. Parathyroid Adenoma was found in only one of the 411 patients, an incidence of 0.2%.

Eighty percent (80%) of the calculi were found



From the Department of Surgery, Division of Urology, University of Arkansas Medical Center, Little Rock, Ark.
¹ Prince, C. L. and Scardino, P. L.: A Statistical Analysis of Ureteral Calculi. J. Urol., 83: 561, 1960.



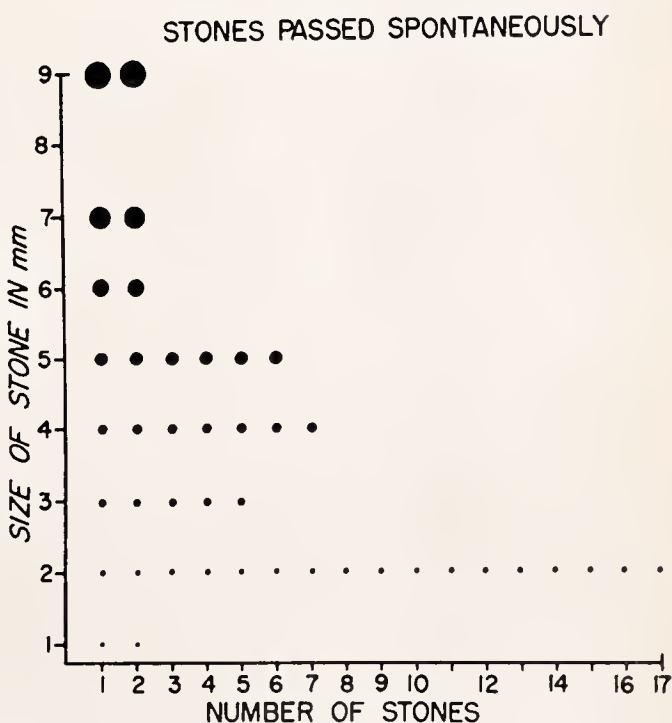
to be in the lower $\frac{1}{3}$, 9% in the middle $\frac{1}{3}$, and 11% were found in the upper $\frac{1}{3}$, of the ureter.

Incidence by sex revealed 64.6% of ureteral calculi occurring in males and 35.4% in females. Ureteral stones were noted more frequently in the female under 40 and in the male over 40. (Fig. 1)

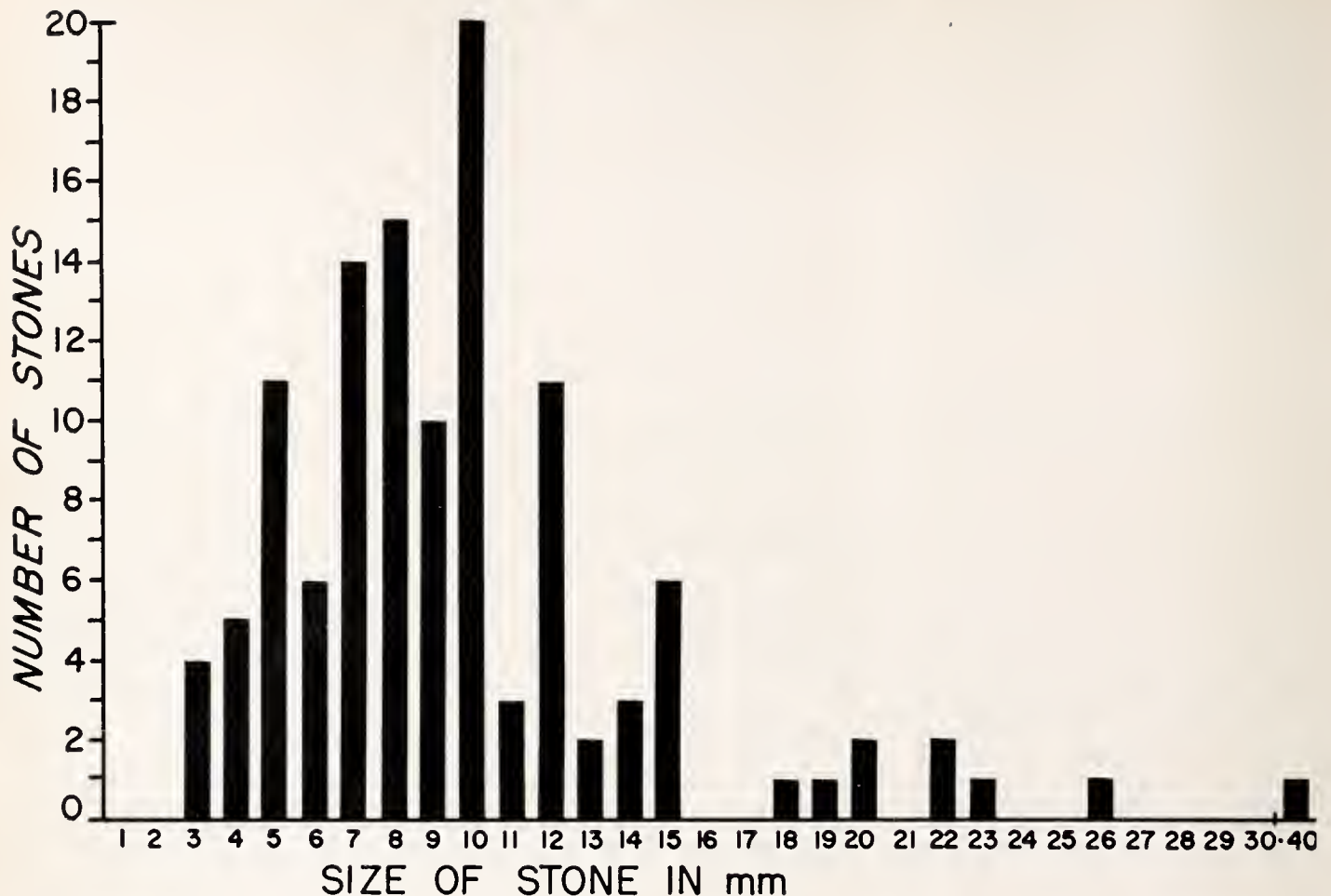
Of the calculi in the lower $\frac{1}{3}$ of the ureter 57% were extracted with the Johnson Basket and our success rate was 88%. (Fig. 2) Five percent (5%) were removed by transurethral meatotomy, 16% by ureterolithotomy, and 22% were passed spontaneously. (Fig. 3)

In the upper and middle portions of the ureter 20% of the total calculi were found. Ureterolithotomy was required in 65% of these stones, in addition to the 16% occurring in the lower ureter. (Fig. 4)

The complications following Johnson Basket



URETEROLITHOTOMY



manipulation were: (1) the basket was broken in two patients requiring ureterotomy, and (2) one ureter was ruptured.

Ureterolithotomy complications were: (1) urinary fistulae in two patients, (2) one stricture of the ureter, (3) one incisional hernia, and (4) one nephrectomy due to hemorrhage.

The average postoperative hospitalization was 5.1 days for Johnson Basket extraction and 8.5 days for ureterolithotomy.

Discussion

Certainly no dogmatic program for the management of ureteral calculi can be outlined for all patients. There are many variables that must be considered, such as duration of calculus in ureter, sepsis, function of the kidney above the calculus, status of the opposite kidney and general condition of the patient.

If one could predict the future, then there would be unanimity in agreement on stone management. We would operate without undue delay those stones which would not pass spontaneously and allow the others to be passed. Until our "crystal ball index" improves we must have some rule of thumb to guide us.

In a patient who has a normal functioning kidney by pyelogram on the opposite side, we elect to wait—(1) when the calculus is 5 mm. or less, (2) when pain can be easily controlled by well-tolerated drugs, (3) when there is no evidence of infection, and (4) when the patient is cooperative enough to wait an interval of time to determine progress.

When the calculus is between 5 to 10 mm. and seems to be progressing down the ureter, and the previous criteria are met, we would delay operative procedure, but certainly would expect earlier surgical intervention. We feel those calculi larger than one centimeter when found in upper and middle $\frac{1}{3}$ should have a ureterolithotomy when the general condition of the patient would permit.

The calculi in the lower $\frac{1}{3}$ of the ureter, less than 1 cm. in diameter have been manipulated with the Johnson Basket with a long 3 F. filiform guide. The larger calculi once engaged in the basket may be too large to be pulled through the ureteral meatus. Then it becomes necessary to incise the meatus ventrally with the 24 F. resectoscope passed alongside the shank of the basket.

When the calculus is impacted in the intramural portion of the ureter, the calculus is cut down upon with the resectoscope, teased into the bladder and withdrawn through the sheath with an Ellik Evacuator. Vesicoureteral reflux following ureteral meatotomy for this purpose has not been prominent.

When unsuccessful in extracting a calculus in the lower $\frac{1}{3}$ of the ureter with the Johnson Basket, another attempt is made in four or five days, expecting 50% success. At that time, preparation is made for ureterolithotomy in case of failure.

Splinting of the ureter by catheter is not always necessary after basket extraction. If it is necessary to make three or more passages of the basket an ureteral catheter is placed indwelling

to the renal pelvis, if edema and ureteral spasm permits.

Summary

Experiences in the management of 429 ureteral calculi, occurring in 411 patients are evaluated. This has afforded a basis on which to inform the patient as to the statistical possibility of spontaneous passage, surgical or endoscopic removal.

Ureterolithotomy was considered necessary in 65% of stones in the upper $\frac{1}{3}$ of the ureter as compared with 16% in the lower $\frac{1}{3}$.

Manipulation of lower ureteral stones by the Johnson Basket was used in 57%, with a success rate in 88% of the cases.

The complications of Johnson Basket extraction and ureterolithotomy were listed.

TEACHING SEMINAR

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IDIOPATHIC HYPERTROPHIC SUBAORTIC STENOSIS

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OBSTRUCTION TO THE outflow of blood from the left ventricle is most commonly due to valvular aortic stenosis. In some cases the obstruction is due to a subvalvular fibrous band located a few millimeters below the aortic valve, and in a minority of cases there may be a supravalvular fibrous band in the proximal aorta. In recent years a new entity resulting in outflow obstruction to the left ventricle, due to muscular hypertrophy, has been described with increasing incidence^{1, 2, 3, 4}. This has been referred to variously as functional obstruction of the left ventricle, pseudo-aortic stenosis, muscular subaortic stenosis, and obstructive cardiomyopathy, but the most popular descriptive term appears to be idiopathic hypertrophic subaortic stenosis. Brock¹ is credited with the first description of this entity. For the understanding of idiopathic hypertrophic subaortic stenosis, attention should first be directed to the more widely appreciated muscular outflow obstruction of the outflow tract of the right ventricle that can develop with pulmonic stenosis and Tetralogy of Fallot. It is known that after surgical correction of the valvular stenosis a gradient may still exist from the right ventricle to the pulmonary artery. However, in the course of time a spontaneous decrease in the muscular hypertrophy may occur, and the gradient may disappear. If at surgery the infundibular wall is resected, i.e. actual removal of part of the muscular hypertrophy, then the postoperative hemodynamics will be normal. Certainly the

anatomy of the left ventricular outflow tract is different from that of the right ventricle. Nevertheless a similarity in regard to outflow obstruction exists. It may be recalled that the outflow tract of the left ventricle is bounded laterally by the aortic cusp of the mitral valve and by the two

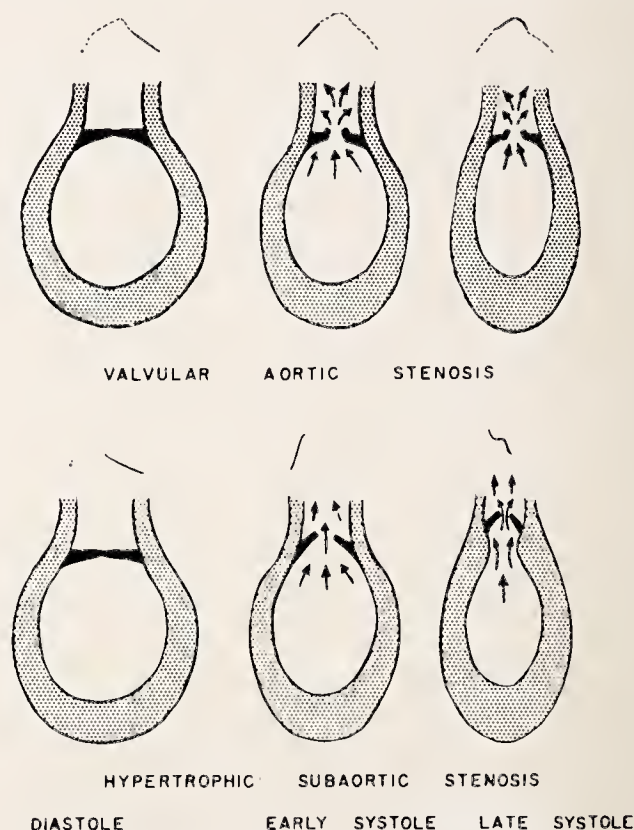


FIGURE 1. THIS IS A DIAGRAMATIC SKETCH COMPARING VALVULAR AND HYPERTROPHIC SUBAORTIC STENOSIS AND THE RESULTING EFFECT OF THE STENOSIS ON THE ARTERIAL PRESSURE PULSE FORMATION.

papillary muscles. The medial wall consists of the smooth ventricular septum with the part adjoining the root of the aorta being fibrous. During normal systolic contraction of the left ventricle this outflow tract is obliterated. In idiopathic hypertrophic subaortic stenosis there is muscular hypertrophy of the entire left ventricle but seemingly a disproportionate hypertrophy of the intraventricular septum with a decrease in the size of the ventricular cavity^{5, 6, 7}. As a consequence of muscular contraction a subaortic stenosis is produced. (Fig. 1) This lesion is overlooked at post-mortem studies, as well as during operation, when the heart is not actually contracting. Several patients have been subjected to operative procedures in the belief that valvular aortic stenosis was present only to find normal valves. The diagnosis at the time of surgery can be made if the palpating finger is passed into the outflow tract of the left ventricle while the heart is contracting.^{2, 8} Another interesting aspect of this entity is its variability in degree of stenosis. This has been dramatically pointed out in patients who preoperatively had significant gradients between the left ventricle and aorta but at surgery had no significant gradient. This variability in degree of obstruction seems also to alter the clinical aspects of this disorder.

History

The symptoms of hypertrophic subaortic stenosis occur most often in the second to fifth decade, although a few case reports have included patients that were younger.⁹ Angina pectoris, syncope, palpitation, and congestive heart failure are the usual symptoms of this disorder. A history of decreasing exercise tolerance that may be intermittent in severity is occasionally elicited early in the course, apparently due to the intermittent nature of the obstruction. A known history of a heart murmur since early life and of sudden death in young members of the family is reported frequently. Usually there is not a history of acute rheumatic fever. In general the symptoms of hypertrophic subaortic stenosis are similar to those of valvular aortic stenosis, but the course may be more prolonged than that expected with the latter. There may be a history of clinical deterioration after the use of digitalis which will be commented upon later.

Physical Examination

After symptoms start there is cardiomegaly with predominance of the left ventricle. A thrill

may be present at the left sternal border or apex. A characteristic harsh systolic murmur with a mid-systolic accentuation is heard best at the left sternal border or apex with poor transmission to the neck vessels. A diastolic decrescendo murmur may be heard at the left sternal border, although some authors feel that this makes the diagnosis of hypertrophic subaortic stenosis unlikely.¹⁰ The cause of the diastolic murmur may be due to slight valvular deformity secondary to a jet effect from the subvalvular stenosis, the presence of subacute bacterial endocarditis³, or regurgitation of blood from the chamber between the subaortic stenosis and the aortic valves.¹¹ Certainly it has been reported in the minority of cases with hypertrophic subaortic stenosis. The aortic second sound is usually normal. The pulse is said to be quick rising as opposed to that of valvular stenosis. However, this is usually commented upon after the diagnosis is established by other means. In some cases a minimal degree of mitral insufficiency due to distortion of the mitral valves has been shown to coexist making the clinical diagnosis more difficult.¹² It is quite apparent why many of these patients have been misdiagnosed as ventricular septal defect or mitral insufficiency.

ECG and X-Ray

The electrocardiogram and chest films are confirmatory of left ventricular hypertrophy and there may be left atrial hypertrophy. Careful attention should be taken to exclude aortic valvular calcification by cardiac fluoroscopy and planograms. In the older patient this is of more value since in the majority of patients over 40 years of age with valvular aortic stenosis calcification will be present.¹³ Another point of importance is the absence of poststenotic dilatation of the aorta in hypertrophic subaortic stenosis as opposed to its expected presence in valvular stenosis.

Cardiac Catheterization

The most readily available technique for the diagnosis of hypertrophic subaortic stenosis consists simply of recording intra-arterial pressures and an electrocardiogram. By this means the arterial pulse can be characterized. In hypertrophic subaortic stenosis and normal patients the peak systolic pressure occurs within 0.10 to 0.16 second with an average 0.13 second. In valvular aortic stenosis the peak systolic pressure is achieved between 0.13 to 0.29 second and averages 0.23 second from the onset of ventricular

contraction.¹⁴ In addition the recorded pulse pressure curve shows an early systolic peak followed by a slight drop and a secondary peak, apparently the result of muscular contraction resulting in stenosis in mid-systole with a transient decrease in systolic ejection of blood¹⁵ (Figure 1.) This has not been reported in all cases however. Of more diagnostic importance is the phenomenon associated with the occurrence of premature ventricular contractions. Following a premature ventricular contraction there is a prolonged diastolic filling time resulting in a greater left ventricular end diastolic volume and hence a greater force of ventricular contraction. This then results in a higher peak systolic pulse pressure immediately following the premature ventricular contraction in normal patients and in those with valvular aortic stenosis. The exception to this is in severe cases of valvular stenosis when the peak systolic pressure is fixed. In contrast to these findings the patient with hypertrophic subaortic stenosis has a decrease in the peak systolic pressure following a premature ventricular contraction.¹⁶ This results from the fact that a greater force of ventricular contraction results in the production of a more severe degree of stenosis. Simultaneous intraventricular recordings confirm the fact that intraventricular pressure is higher following a premature ventricular contraction.

Further diagnostic maneuvers are helpful. A gradient across the aortic valve can be demonstrated and sometimes a subvalvular infundibular chamber can be demonstrated by recording pressures while withdrawing the catheter slowly from the left ventricle. In some cases an associated infundibular stenosis of the right side of the heart is associated.⁹ This is also attributed to the muscular hypertrophy of the septum, but is usually of little significance. Angiocardiograms are diagnostic in that they reveal subvalvular narrowing during systole seen on the lateral projection as an inverted cone with the base at the aortic valve. In some series of cases a high percentage of a minimal degree of mitral insufficiency has been demonstrated and is thought to be due to distortion of the mitral valve from the hypertrophied ventricular septum.¹² In some cases the left ventricular end diastolic pressure is elevated in the absence of other findings of congestive heart failure. This is generally attributed to a decrease in the compliance of the left ventricular wall.⁵

Recently attention has been drawn to the effects of certain drugs on the lesion of hypertrophic

subaortic stenosis.^{17, 18} Clinical deterioration of the patient has occasionally been seen following use of digitalis preparations as mentioned previously. This is supposedly due to an increased force of muscular contraction accentuating the subvalvular stenosis. Isoproterenol produces a stimulating effect on the myocardium and has been shown to produce or increase the gradient across the aortic valve in those patients with hypertrophic subaortic stenosis. Fifteen patients with left ventricular hypertrophy due to valvular aortic stenosis, hypertensive cardiovascular disease, mitral insufficiency, and undiagnosed heart disease, were given an isoproterenol infusion and pressures recorded. The only change noted was a systolic gradient which was produced or increased in only two of four patients with valvular aortic stenosis.¹⁹ Isoproterenol infusion may prove to be of valuable assistance in confirming the diagnosis of hypertrophic subaortic stenosis.

Treatment

The successful treatment of this disorder depends upon further understanding of the etiology. Some investigators suggest the theory that this is a form of familial cardiomyopathy,^{6, 20} while others feel that in selected cases it may be related to secondary ventricular hypertrophy resulting from other lesions, such as valvular aortic stenosis, mitral insufficiency, and congenital subaortic stenosis due to a fibrous band.²¹ Correction of hypertrophic subaortic stenosis has been attempted surgically. Removal of part of the hypertrophied septum⁸ and a ventriculomyotomy through the constricting muscular mass²² have been performed with reported good results in a small number of cases. The ultimate results of surgery will not be known until these cases are followed for a longer time.

Summary

This is a disorder of unknown etiology which tends to occur in the second to fifth decades with the symptoms of angina, syncope, or congestive heart failure. A history of a murmur since early childhood and a family history of sudden death is not unusual. A systolic murmur heard best at the left sternal border or apex with accompanying thrill is usually present. The aortic second sound may be normal. Left ventricular hypertrophy is confirmed by electrocardiogram and chest film. Recordings of the arterial pressure pulse characteristics, including the effect of a premature ventricular contraction, are helpful

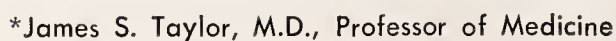
in diagnosis. Angiocardiograms establish the diagnosis conclusively. Clinically the diagnosis of valvular aortic stenosis, ventricular septal defect or mitral insufficiency is erroneously suggested. Treatment of this disorder is unsatisfactory at this time and awaits further elucidation of the etiological factors.

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ANSWER ON PAGE 463



WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 466



#11-31-55

12 year old white female

Difficulty in walking and pain in both hips.



PUBLIC HEALTH AT A GLANCE

ARKANSAS MORBIDITY — 1962

UNLIKE THE INCREASE each of the previous two years, there has been a decrease in the number of notifiable diseases and conditions reported in Arkansas during 1962. An increase of approximately 1,000 cases each year over the previous year was recorded in 1960 and 1961, but in 1962 a decrease under 1961 of approximately 2,000 cases was reported.

One case each of botulism, coccidioidomycosis, and occupational diseased condition of the eye was reported in 1961, none in 1962. One case of actinomycosis, three of arthropod-borne encephalitis, and one of rickettsialpox were recorded in 1962; none in 1961. Blastomycosis cases totaled 5 each year, and tularemia 60 each year.

Increases were recorded in the following (1962 totals first): amebiasis 43, 26; ascariasis 28, 7; diphtheria 20, 4; postinfectious encephalitis 19, 11; other and unspecified encephalitis 20, 16; serum hepatitis 7, 3; aseptic meningitis 19, 18; meningococcal infections (meningitis and meningococemia) 23, 14; pertussis 83, 33; poliomyelitis 24, 23 (paralytic 20, 12; nonparalytic 4, 11); Rocky Mountain spotted fever 6, 5; shigellosis 176, 141; and typhoid fever 34, 32.

Decreases in reported cases were noted in the following (1962 totals first): ancylostomiasis (hookworm disease) 2, 12; animal bites 1106, 1209; brucellosis (undulant fever) 11, 19; cancer 1159, 1339; chickenpox 366, 709; German measles 59, 168; infectious hepatitis 564, 1004 (under 20 years of age 349, 732; 20 years of age and over 215, 272); histoplasmosis 26, 32; measles 1438, 1769; meningitis other than aseptic and meningococcal 28, 29; infectious mononucleosis 34, 43; mumps 216, 769; rabies in animals 70, 246; acute rheumatic fever 4, 16; salmonellosis 71, 72; streptococcal sore throat including scarlet fever 105, 270; tetanus 11, 12; and endemic typhus fever 1, 2.

We hope this is a true decrease in reportable conditions rather than a reflection of incomplete reporting by the physicians of the State.

NOTIFIABLE DISEASES AND CONDITIONS	1962	1961
TOTAL TOTAL		
Actinomycosis	1	0
Amebiasis (amebic dysentery)	43	26
Ancylostomiasis (hookworm disease)	2	12
Animal bites	1106	1209
Ascariasis (roundworm)	28	7
Blastomycosis	5	5
Brucellosis (undulant fever)	11	19
Cancer	1159	1339
Chickenpox	366	709
Coccidioidomycosis	0	1
Diphtheria	20	4
Encephalitis, arthropod-borne	3	0
Encephalitis, postinfectious	19	11
Encephalitis, other and unspecified	20	16
Food poisoning: botulism	0	1
German measles	59	168
Hepatitis, infectious: total	564	1004
Under 20 years of age	349	732
20 years of age and over	215	272
Hepatitis, serum: total	7	3
20 years of age and over	7	3
Histoplasmosis	26	32
Measles	1438	1769
Meningitis, aseptic	19	18
Meningococcal infections	23	14
Meningitis, other types	28	29
Mononucleosis, infectious	34	43
Mumps	216	769
Occupational diseased condition of the eye	0	1
Pertussis (whooping cough)	83	33
Poliomyelitis: total	24	23
Paralytic	20	12
Nonparalytic	4	11
Deaths	3	1
Rabies in animals	70	246
Rheumatic fever, acute	4	16
Rickettsialpox	1	0
Rocky Mountain spotted fever	6	5
Salmonellosis, including paratyphoid, but not typhoid fever	71	72
Shigellosis (bacillary dysentery)	176	141
Streptococcal sore throat, including scarlet fever	105	270
Tetanus	11	12
Tularemia	60	60
Typhoid fever	34	32
Typhus fever, endemic	1	2
Total Reported Cases	5845	8121



EDITORIAL

ESOPHAGEAL HIATUS HERNIA

Alfred Kahn, Jr., M.D.

IN THE PAST 15 YEARS there has been a tremendous resurgence of interest in the problem of hiatus hernia. This has been associated with new studies on the esophagus. Ingelfinger (Archives of Internal Medicine, Vol. 105, p. 136-770, May, 1960) has summarized many of the recent physiological studies. He points out that swallowing is initiated in the pharynx and tremendous pressure is built up in the pharynx; this is under a very complex neurological control based in the brain; after pressure builds up in the pharynx the upper esophageal or crico pharyngeal ring relaxes and food passes into the esophagus without a pressure in the pharynx build up as in polio the person cannot swallow. Although the upper $\frac{1}{2}$ of the esophagus is voluntary or striped muscle its function is entirely automatic and it functions as a unit with the lower $\frac{2}{3}$ which is smooth muscle; the reflexes which control the esophagus are entirely local and are dependent on the myenteric plexus. A bolus passing into the esophagus seems to be the stimulus for its rhythmic peristaltic contraction which carries the bolus to the inferior esophageal ring. The bolus moves 2 cm./second and under a pressure of 100 MM Mercury.

The inferior esophageal ring is a high pressure zone which relaxes to food pass from the esophagus into the stomach, and which prevents retrograde movement of gastric contents into the esophagus. This ring is of the greatest importance as it protects the esophagus from the corrosive action of gastric contents. This high pressure zone at the lower end of the esophagus is often

disturbed in hiatus hernia thus leading to esophagitis. This ring has been studied in several manners: ballon tip catheters and electric transducers. There seems to be complete agreement as to its existence and function. It has been held in the past that the diaphragm exerted a pinch cock mechanism preventing retrograde flow of gastric contents into the stomach; the consensus now is that the diaphragm is not the important sphincter; this can be proved by observing a swallow of barium stop at the diaphragm during breath holding, and then pass after a second or so despite the breath holding and immobile diaphragm. The esophago gastric sphincter in hiatus hernia is well discussed by Atkinson et al (Lancet, p. 1138, December 7, 1957.)

The Z-line used to be considered an important land mark between the stomach and the esophagus. Metal clips used with appropriate X-Ray technique have demonstrated the Z-line varies with body build and may vary in position from below the diaphragm to above the diaphragm. (Wilkins, New England Journal of Medicine, Vol. 257, p. 24, July 4, 1957).

Acidity in the esophagus has been studied in relationship to disease. Tuttle (JAMA, Vol. 176, p. 498, May 3, 1961) measured simultaneously pressures and pH in the lower esophagus. In 12 patients with heart burn the symptoms had no relationship to pressure. However, whenever the pH went below 4, symptoms were present and when the pH rose above 4 the symptoms were relieved. This is the basis of the Bernstein Test for esophagitis; dilute hydrochloric acid is dripped

into the esophagus and if esophagitis is present it will reproduce burning. It is of interest that aside from the effects of gravity tending to empty the esophagus during upright posture during the day, the 700 to 1000 cc of swallowed alkaline saliva tend to neutralize any retrograde flow of gastric acids.

The treatment of hiatus hernia remains primarily medical and aimed at decreasing gastric acid by anti-secretory drugs, neutralizing gastric acid with antacids, and promoting good drainage of gastric acids through the pylorus by appropriate posture during the night. This program relieves the symptoms of many cases; the major symptoms being pain 68% of cases, pyrosis in 37%, vomiting 37%, dysphagia 33% and bleeding in 32%. (Hoffman et al, JAMA, 169, p. 103-119, January 10, 1959). The pain may be esophageal as pyrosis or heart burn, or the pain may be actually a severe sharp pain due to the hernia. The bleeding may be massive or so minute yet constant as to be the cause of an otherwise unexplained anemia. Flood (JAMA, Vol. 172, p. 100-134, January 23, 1960) reviewed the cases seen on the Services of the College of Physicians and Surgeons of New York City. He generalized that patients free of complications at the onset of treatment tend to remain thus. His cases with mild esophagitis and hiatus hernia tended to fairly well and he did not regard mild esophagitis as a bad prognostic sign; his cases of hiatus hernia with gross hemorrhage will tend to have a recurrence in $\frac{1}{3}$ of the cases; the cases of hiatus hernia complicated by a peptic ulcer regardless of whether in the esophagus, stomach, or duodenum had a poor prognosis. Rex et al (JAMA, Vol. 178, p. 271, October 21, 1961)

tried to determine the hazards of not repairing esophageal hiatus hernias in 365 patients seen at the Mayo Clinic; 60% of the sliding hiatus hernias were asymptomatic or improved after 10 years whereas this applied to only 40% of the short esophagus type of hiatus hernia. If esophagitis was present in addition, only 39% improved.

Surgery of simple sliding hiatus hernia consists of reducing the stomach into the abdomen. Despite arguments about diaphragmatic pinch cocks vs. internal sphincters in the esophagus, the clinical result of the operation seems to be the relief of symptoms from both the hernia and the associated esophagitis if present. Humphreys reported that the results of surgery in one of his series of sliding hiatus hernia was good in 83%. (Journal of Thoracic Surgery, Vol. 34, p. 749, December, 1957). Clowes (Archives of Surgery, October, 1961) reports on some types of surgical operations which have been used including:—simple replacement of the stomach with closure of the diaphragm, prosthetic esophagus using bowel, etc. Basically, the surgery used depends not alone on the anatomy of the lesion but also on the complications present. In the case of esophagitis, two lesions are possible:—spasm due to irritation or stenosis, spasm can be readily treated by bouginage. Stenosis may require surgery if bouginage is not possible.

Better understanding of hiatus hernia and its treatment has stemmed from better research on the esophagus and stomach, and from the excellent clinical reviews pointing out the relatively benign course of most cases.

MEDICINE IN THE



Southwest Allergy Forum to Meet in San Antonio

The Southwest Allergy Forum will meet at the Granada Hotel in San Antonio, Texas on April 21, 22, and 23, 1963. Dr. Bernard T. Fein of San Antonio is President of the Forum for 1963 and Dr. Boen Swinny, Sr. is Program Chairman. Correspondence is to be directed to Dr. Boen Swinny, Jr., 2-G Medical Professional Building, San Antonio, 12, Texas.

Dr. Kolb Elected to AMA Council

At the June 1962 meeting of the American Medical Association, Dr. James Monroe Kolb, Sr., of Clarksville, Arkansas, was elected to the AMA's Council on Constitution and By-Laws for a term ending in 1966. There are six physicians from all over the United States serving on this Council.

Dr. Kolb has served on many of the State Society committees, as well as serving as councilor, chairman of the Council, president-elect and president of the Arkansas Medical Society. He has been one of the State Society's delegates to the AMA since 1955 and is also a member of the AMA Committee on Medical Practices.

The Month in Washington

Washington, D. C.—President Kennedy submitted to Congress a proposed new multi-million dollar program to combat mental illness and mental retardation calling for the establishment of hundreds of community health centers.

The program would be financed jointly by the federal and state or local governments, similar to the Hill-Burton program for construction of hospitals. It was estimated the program would cost hundreds of millions of dollars eventually, if approved by Congress and fully implemented at the state and local level. Congress was asked to appropriate \$31.3 million in fiscal 1964 for the program.

Kennedy listed three objectives: 1) determining the causes of mental illness and mental retardation and finding effective treatments for them;

2) research and training of skilled personnel; 3) strengthening and improvement of programs and facilities for treating the mentally afflicted.

"This approach is designed, in large measure, to use federal resources to stimulate state, local and private action," Kennedy said. "When carried out, reliance on the cold mercy of custodial isolation will be supplanted by the open warmth of community concern and capability. Emphasis on prevention, treatment and rehabilitation will be substituted for a desultory interest in confining patients in an institution to wither away."

The President asked for prompt Congressional approval of legislation that would:

1) Authorize grants to the states beginning in fiscal 1965 for establishment of comprehensive community mental health centers with the federal government providing from 45 to 75 per cent of the project costs and short-term grants for initial staffing costs. The federal government would provide up to 75 per cent of operation costs in early months and phase out such support in about four years.

2) Set up a five-year program, starting with \$5 million in the next fiscal year, for project grants to stimulate state and local health departments in planning, in initiating and developing programs. The goal would be prevention of mental retardation.

3) Establish project grants to states to promote public planning for comprehensive state and community action on retardation, plus provision of federal funds for up to 75 per cent of the construction costs of mental retardation research centers.

4) Amend the Vocational Rehabilitation Act to provide additional federal financial assistance for services to the mentally retarded and others whose vocational rehabilitation potential is difficult to determine. The legislation would permit rehabilitation services to a mentally retarded person up to 18 months.

The Kennedy Administration's budget for fiscal 1964 calls for increases for all activities of the

National Institutes of Health with a boost of nearly 50 per cent, to \$166 million, for mental health work.

The estimated expenditures in the new budget for medical research through NIH totalled \$850 million, \$113 million more than the estimate for the current fiscal year. The total was somewhat surprising in that Kennedy expressed dissatisfaction last year when Congress appropriated \$100 million more for NIH than he had requested.

In a special message to Congress "on improving American health," President Kennedy renewed requests for grants for medical and dental schools, air pollution control, health research, vocational rehabilitation, encouragement of group practice, improving maternal and child care and health and community health services.

The President also said there was a "clear and urgent need" for tighter control over the marketing of food, drugs, therapeutic devices and cosmetics.

Kennedy urged a five-year extension of the Hill-Burton Act providing federal aid for construction of health facilities, due to expire June 30, 1964. He asked an additional \$35 million to provide financial assistance for modernizing or replacing hospitals and nursing homes under the law.

He said the need for "high quality" nursing homes would be "especially great" and urged an increase in the budget for such facilities from \$20 million to \$50 million annually.

The President asked Congress to adopt legislation to abate interstate air pollution along the lines of the existing water pollution control enforcement measures.

The A.M.A. again supported federal aid in construction, expansion and modernization of medical school facilities—"a one-time expenditure of federal funds . . . where the maximum freedom of the school from federal control is assured."

"If the high standards of medical education are to be maintained, increased attention must be given to the adequacy of physical facilities, the availability of qualified instructors and the availability of teaching material and patients for the clinical phases of medical education," Dr. Dorman told a House Committee.

"Any attempt to increase the number of medical students without regard to these conditions will result in a lowering of the standards of medical education. At this time, priority should

be given, in our opinion, to an increase and improvement in the physical facilities available for medical education."

* * *

The Federal government is investigating cancer cure claims by the makers of krebiozen, and checking reports that the drug was being illegally sold.

The Food and Drug Administration set out to gather clinical records on patients who had been treated with the drug and who were reported to have been helped or cured by it. The FDA planned to try to evaluate whether krebiozen "has had any favorable influence in the treatment of cancer."

Commenting on quackery in the field of cancer in a statement at a hearing of the Senate Committee on Aging, Dr. Gerald D. Dorman, a member of the AMA Board of Trustees, said:

"A cancer product still being promoted at this time is 'krebiozen,' a product of extreme dilution, being one part of whatever the active ingredient is supposed to be to 100,000 parts of light mineral oil. This 'cure' sells for \$9.50 for 1 cc ampule, which is about one-fifth of a teaspoonful. Competent micro-chemists have testified to their inability to find anything in an ampule of this product but the mineral oil."

An offer by Krebiozen Research Foundation, Chicago, to bring to Washington, patients it claims were cured of cancer by taking krebiozen was rejected by the Department of Health, Education and Welfare.

"The presentation of patients to give testimonials without any opportunity for further study of their complete medical records would contribute nothing at all toward solution of the scientific question of krebiozen's merit as an anti-cancer drug," Boisfeuillet Jones, Special Assistant to the HEW Secretary, said.

Dr. Robert E. Shank, chairman of the A.M.A. Council on Foods and Nutrition told the Senate Committee on Aging that the vitamin industry is selling people pills they do not need.

"Perhaps the most lucrative deception in quackery is perpetrated by nearly every distributor of vitamins and vitamin-mineral supplements," he said. "Americans each year are spending hundreds of millions of dollars on (worthless or unnecessary) pills, powders, capsules and compounds in search of a shortcut to health."

Dr. Jones Reveals New Operating Technique

Dr. Kenneth G. Jones has developed a new operation for correcting ligament injuries to the knee. It has been used to restore function in 11 patients, nine of them athletes, the orthopaedic surgeon reported in a scientific paper before the 30th annual meeting of the American Academy of Orthopaedic Surgeons in Miami.

He explained that a plastic substitute is inserted for the irreparably damaged anterior cruciate ligament of the knee. Generally, this ligament, if unrepaired, becomes the single major reason for permanent disability in ligamentous injuries to the knee.

Dr. Robins Named "Man Of The Year" in Camden

Dr. R. B. Robins, immediate past president of the Camden Chamber of Commerce and active civic and community leader, was presented with the Walter E. Hussman Trophy recently as Camden's "Man of the Year". The presentation was made at the annual Jaycees Awards and Bosses Night program.

More Money Urged for Medical Center

A Special legislative council committee has decided to recommend that the 1963 Arkansas legislature go along with Gov. Orval E. Faubus and provide more money for the University of Arkansas Medical Center. The committee went along with Faubus' suggestion that the center get an extra \$301,000 a year and additional funds if tax revenues produce a surplus. The money would be used to open some unused beds at the center for paying patients with hopes that the beds might become "self-supporting" in the future.

TRENDS IN TUITION LEVELS FOR FOUR YEAR MEDICAL SCHOOLS IN THE UNITED STATES FOR SELECTED ACADEMIC YEARS FROM 1933-34 to 1963-64

Since tuition fees make up a substantial fraction of the cost of medical education, it is of interest to examine the rate at which they have increased over the past several decades.

Because of the changing patterns of financial support for medical schools in recent years, tuition provides a relatively less important source of funds for the basic operations of medical schools. Tuition has been replaced as the second most important item of income by other funds. This change in its relative position has occurred

even though the trend in tuition level has been upward for both private and public schools and for both resident and non-resident students in the latter.

Insofar as possible, the tuition and fees used in the present analyses are intended to cover all monies paid by students to the medical school or university towards the cost of their medical education. For the most part, the average annual tuition figures represent one-fourth of the total fees charged students for the four years of the medical course. These fees include such minor charges as those for matriculation, breakage, diploma and graduation. Other charges such as a "maintenance fee" reported by one school have been excluded. There is some difficulty in obtaining uniform data for all of the years covered because of the variation in reporting methods used by the schools and the unusual circumstances of accelerated war-time programs. Wherever possible adjustments have been made to standardize the reported information.

TABLE I
COMPARISON OF TUITION LEVELS FOR THE YEARS 1933-34, 1943-44, 1953-54 AND 1963-64 FOR PRIVATE AND PUBLIC FOUR-YEAR MEDICAL SCHOOLS IN THE UNITED STATES (Amounts in Unadjusted Actual Dollar Values)

Type of School	Tuition 1933-34	Tuition 1943-44	Tuition 1953-54	Tuition 1963-64	% Increase 1964/1934
Private Schools					
Average	\$427	\$501	\$831	\$1,290	202%
Median	419	500	835	1,285	
Range	253-610	266-683	508-1,290	716-1,700	
N=	42	42	41	44	
Public Schools (Non-Resident Rates)					
Average	\$367	\$400	\$753	\$ 959	161%
Median	370	465	685	963	
Range	207-581	93-651	97-2,655	360-1,643	
N=	24*	27	30*	38*	
Public Schools (Resident Rates)					
Average	\$230	\$305	\$420	\$ 564	145%
Median	215	289	432	558	
Range	68-406	84-501	97-800	175-801	
N=	25	27	31	39**	

*One public school accepted no non-resident students.
**Kentucky, a newly developing school, not included.

Analyses in this Datagram are based on actual dollar values of tuition charges. No adjustments have been made for the changing purchasing power of the dollar during the time period under consideration. The tuition charges by schools for 1933-34, 1943-44, 1953-54 were obtained from the "Education Numbers" of the JAMA. Tuitions for 1963-64 are those predicted in the AAMC "Admissions Requirements of American Medical Colleges, 1962-63."

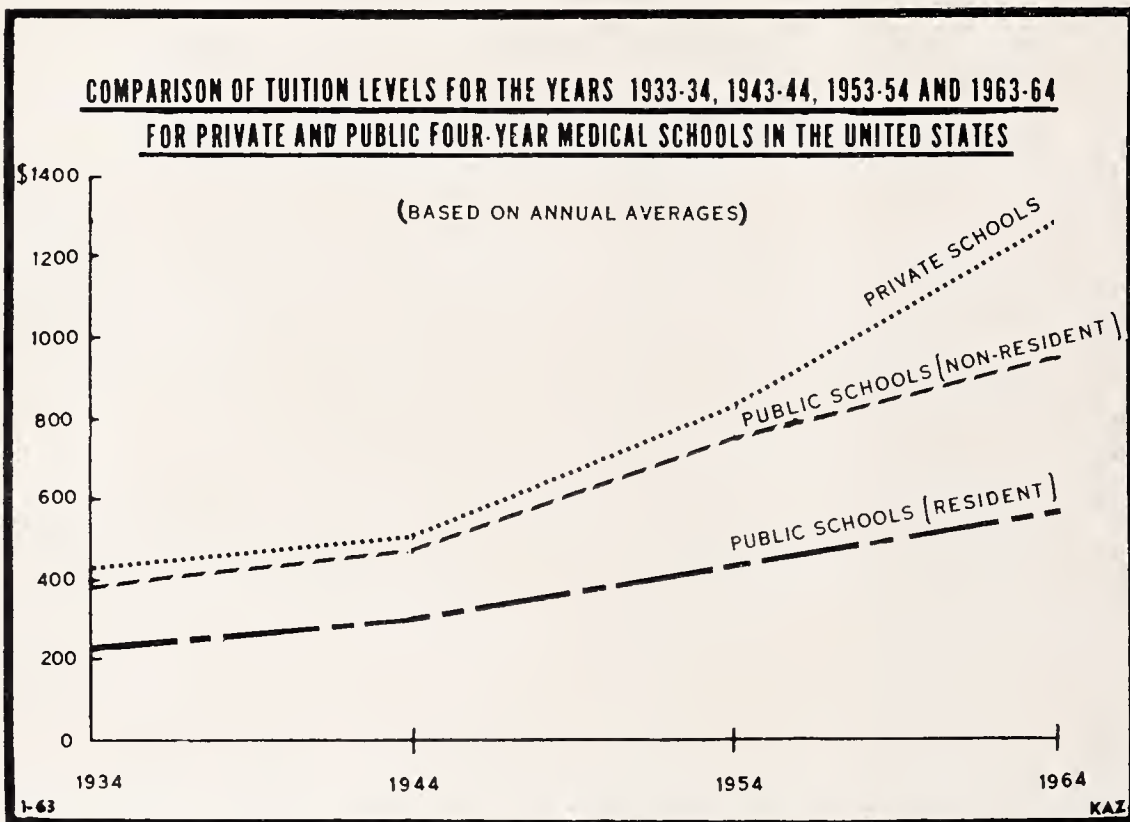
*Submitted by the Division of Operational Studies of the AAMC, 2530 Ridge Avenue, Evanston, Illinois.

Figure 1 graphically portrays the upward trend in tuition levels from 1934 through 1964. Private schools showed a 202% increase in tuition levels during the period. Public school non-resident tuitions increased 161% and resident tuitions increased 145% during the same period.

Table 1 provides the supporting data for the graphs in Figure 1. In addition to average tuition levels for selected years of private and public

four-year medical schools, it shows also the corresponding medians and ranges.

The continuing rise in tuition levels, particularly those of the private schools and the non-resident rates of public schools, has broad implications as to the students' ability to pay for a medical education as well as to the future of medical school financing.



THINGS TO COME



Hahnemann Medical College and Hospital Sponsor Meeting

There will be a postgraduate meeting sponsored by the Hahnemann Medical College and Hospital April 15 - 17, 1963 at the Sheraton Hotel, Philadelphia, Pennsylvania. The director will be Bernard L. Segal, M. D. with William Likoff, M.D. and Daniel Mason, M.D. as Consulting Directors. Title: "The Theory and Practice of Auscultation". For further information:

Bernard L. Segal, M.D.

Symposium Director

Hahnemann Medical College and Hospital
230 North Broad St.

Philadelphia 2, Pennsylvania

Ninth Congress of the Pan-Pacific Surgical Association Dates Announced

The Ninth Congress of the Pan-Pacific Surgical Association will be held November 5 - 13, 1963 in Honolulu, Hawaii, and the First Pan-Pacific Mobile Educational Lecture Seminar will be November 13 - December 10, 1963 in New Zealand, Australia, Thailand, the Philippines, Hong Kong and Japan. All physicians are cordially invited to attend both of these meetings. For further information, please write Dr. F. J. Pinkerton, Director General, Pan-Pacific Surgical Association, Suite 236, Alexander Young Building, Honolulu 13, Hawaii.

The 1963 Scientific Session, a Conference on Unusual Forms and Aspects of Cancer in Man, sponsored by the American Cancer Society will be held at the Biltmore Hotel, New York City, New York, October 21-22, 1963.

Annual Otolaryngologic Assembly Announced

The Department of Otolaryngology of the University of Illinois College of Medicine and the Illinois Eye and Ear Infirmary will offer an intensive postgraduate basic and clinical program under the direction of Doctor Emanuel M. Skolnik. This Assembly for practicing otolaryn-

gologists offers a condensed one week program. It is designed to bring to specialists basic information and a wide variety of current advances in medical and surgical management. Basic sciences are reviewed by means of discussions augmented by visual aids.

Panel sessions have been designed to emphasize otologic and reconstructive surgery, tumors of the head and neck, otoneurology, and audiology. Luncheon chats with question and answer periods are an important part of the daily instructional program.

Interested physicians should direct communications to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk St., Chicago, 12, Ill.

Southwestern Surgical Congress to Meet in Mexico City

The annual meeting of the Southwestern Surgical Congress will be held in Mexico City, April 22 - 27th. Very special planning has been exercised for the Scientific Sessions of the meeting in order that you may hear papers presented by prominent surgeons from the United States and also well known and exceptional Mexican surgeons.

The list of guest Speakers already scheduled to participate include: Dr. Francis Moore, Professor of Surgery, Harvard University. Dr. Rupert Turnbull, the Cleveland Clinic, Dr. Rollins Hanlon, Professor and Chairman of the Department of Surgery at St. Louis University. Dr. George M. Fister, President of the American Medical Association will be present to act as an official representative at the opening ceremonies of the meeting and perhaps give a paper on clinical urology.

Special tours are planned for those attending.

Electromyography and Electrodiagnosis Association to Have Meeting

The American Association of Electromyography and Electrodiagnosis will have its Annual Meeting on August 25, 1963 at the Sheraton-Dallas Hotel in Dallas, Texas. All communications may be addressed to Dr. M. K. Newman, Director of Public Relations.

American Academy of Physical Medicine and Rehabilitation Meeting Announced

The Annual Meeting of the American Academy of Physical Medicine and Rehabilitation will be

held at the Sheraton-Dallas Hotel, August 26, 1963. Direct all communications to Dr. M. K. Newman, 16861 Wyoming Avenue, Detroit, Michigan.

Course in Nasal Surgery to be Presented at Medical College of Virginia

An introductory course in "Expanded Surgery of the Nasal Septum and Closely Related Structures" will be presented at the Medical College of Virginia, Richmond, April 28 - May 1.

The course will consist of lectures, laboratory and surgical demonstrations emphasizing primarily the maxilla-premaxilla approach to nasal septum surgery, examination and diagnosis of nasal form and function, variations of septum operations, medial and lateral osteotomies, mobilizing and modifying the nasal pyramid, treatment of nasal fractures, repair of septum perforations, and surgical management of nasal atrophy atrophic rhinitis, ozena (endonasal microplasty).

Dr. Peter N. Pastore, professor of otolaryngology and chairman of the department, and Dr. Maynard P. Smith, associate clinical professor of otolaryngology, have arranged the program.

23 in a hospital in Little Rock.

He was a native of Paris and had resided in Crittenden County since graduating from the Tulane University School of Medicine. He also attended the University of Arkansas. He practiced medicine in the Clarkedale-Marion area and was active until he became ill in December.

A. J. Harrison, Springdale M.D. Succumbs at 87

Dr. Andrew Jackson Harrison, 87, long-time Springdale Physician, died January 9, 1963 at Springdale Memorial Hospital.

Dr. Harrison was born May 1, 1875, at Hindsville. He received his medical degree from Barnes Medical College at St. Louis, and his first practice was in Aurora. He later practiced medicine in Hindsville, Knox City, Texas and Lowell, before moving to Springdale.

Dr. Harrison received a 50-year service pin from the Arkansas Medical Society and was the second Springdale resident to be awarded the Jaycee "Outstanding Pioneer Citizen" award.

He was a member of the Elmdale Baptist Church and the Masonic Lodge.

Dr. W. Porter, Hot Springs Resident, Dies

Dr. William F. Porter, 73, a resident and practicing physician in Hot Springs since 1918, died January 7, 1963 at a local hospital.

He was born February 6, 1889 in Wise, Va., and resided at 9 Fern St. He was a member of the American, State and Garland County Medical Societies.

Dr. Porter, a veteran of World War I, received his medical degree from the University of Louisville. He practiced for a time in Virginia before moving to Hot Springs.

RESOLUTIONS



Be it resolved that the Garland County Hot Springs Medical Society express its sorrow over the loss of its highly esteemed member Doctor William F. Porter.

The beloved Doctor was a member of this Society since 1918 at which time he came to Hot



OBITUARY

Death Claims Dr. J. W. Case

Dr. James W. Case, Walnut Ridge, died on January 7th in a Newport Hospital, at the age of 42. He had been ill for more than a week with a heart ailment and double pneumonia.

Dr. Case was a native of Randolph county, and as an Air Force pilot during World War II, was shot down and captured by the Germans. He was liberated from a prisoner of war camp by advancing Russian forces.

He was graduated from the University of Arkansas School of Medicine. Most of his practice of medicine was in Walnut Ridge and Pochontas.

Dr. A. C. Parker Dies in West Memphis

Dr. A. C. Parker, 77, of Clarkedale (Crittenden County), a physician 52 years, died January

Springs after rendering valuable service in the Medical Corps of the United States Army during World War I.

He endeared himself to a host of patients that he steadfastly served over the years.

His loss will be felt by his conferees, patients

and a large number of friends.

Be it further resolved that a copy of this resolution be sent to his son, and also a copy be furnished the press, and further that the resolution be spread on the minutes of this Society.



PERSONAL AND NEWS ITEMS

Dr. Charles Avery Heads Med. Society

At a recent meeting of the Nevada County Medical Society the following new officers for 1963 were elected.

Dr. Charles Avery, president; Dr. Charles Hesterly, vice president; Dr. Glenn Hairston, secretary and treasurer. Dr. Charles Hesterly was elected as a delegate to the State Medical Society.

Imboden Clinic to Expand Facilities

Dr. Lloyd Gregory and the staff of Spring River Memorial Clinic in Imboden are opening a second clinic in Hardy, Arkansas. The Hardy Clinic was opened on February 15th, and will be open each Friday thereafter. Dr. Gregory is extending medical attention to an area very much in need of a physician. By so doing he will be making available the modern facilities at Imboden to more people.

Dr. Smith is Elected New Craighead-Poinsett Med. Society President

Dr. V. B. Smith of Marked Tree has been elected president of the Craighead-Poinsett Medical Society. His election came at the January meeting of the organization in Jonesboro.

Lee County Medical Society and Health Personnel Hold Joint Meeting

The Lee County Medical Society was instructed by the District 5 Health Department V.D. Section on the primary and secondary lesions of syphilis at a meeting with the Lee County health personnel. The meeting was held at Lee Memorial

Hospital with dinner at 6:00 p.m., Friday, February 1, 1963.

Dr. Hayes, Jr. Lectures in Chicago

Dr. Harry Hayes, Jr., delivered a lecture on Surgery of the Eyelid to the ophthalmology residents at the Illinois Eye and Ear Infirmary in Chicago on February the first.

Officers Elected at Hawkins Clinic Hospital

At a meeting of the medical staff of the Hawkins Clinic Hospital, the following officers were elected for the year 1963: Wm. Carroll Dodd, M.D., Bald Knob, president; C. W. Jackson, M.D., Judsonia, vice president; J. Rex Gibbons, Searcy, executive secretary.

New Medical Clinic Opens at Gould

The new Gould Medical Clinic, located on Highway 65, north, inside Gould City limits officially opened Monday, January 21. It is owned by Dr. James W. Freeland and operated by Dr. O. G. Blackwell.

Morrilton Doctor on Tour

One of Morrilton's most active citizens, Dr. Harold E. Hyder, left recently by plane for a two year tour of medical work in Saudi Arabia. His family will join him there later.

Three State Physicians Honored

Three Arkansas physicians have been honored by the American College of Physicians—an international organization representing the specialty

of internal medicine.

Arkansas doctors designated as fellows of the American College of Physicians were Dr. Wilburn M. Hamilton and Dr. S. William Ross of Little Rock. Elected as an associate was Dr. George L. Ackerman, also of Little Rock.

Dr. Johnston Nominated Councilor to the SMA From Arkansas

During a recent Southern Medical Association Meeting in Miami, Dr. Thomas G. Johnston was nominated Councilor to the Southern Medical Association from Arkansas.

M.D. Clinic Expanded in Jacksonville

Dr. J. A. Johnson, senior member of the professional firm of Johnson, Durham and Strickland, M.D.'s has announced the completion of a new 1600 sq. ft. addition to his clinic.

Dr. Jack Walker New Medical Group Head

Dr. Jack Walker was elected president of the Columbia County Medical Society. He will also serve as chief of staff at Magnolia City Hospital during 1963. Other officers include Dr. Evan Houston, vice president, and Dr. John Ruff who will continue as secretary-treasurer. Dr. John Alexander was named delegate to the Arkansas Medical Society.

Open House at Salem Clinic Held

More than 600 Fulton countians were guests of Dr. and Mrs. Carl B. Arnold, Dr. and Mrs. David E. Ducker, the staff and special assistants when the formal open house for the new Salem Clinic was held in January.

Kiwanians Hear Noted Doctor

Members of the Springdale Kiwanis Club, their wives and guests heard Dr. Henry Rodgers, psychoanalyst, as guest speaker for the annual installation and ladies night held recently.

Dr. Rodgers, reputed to be a very humorous after-dinner speaker as a sideline to his professional duties, spoke on the subject "Women I have Psychoanalyzed."

Dr. Harrel Attended Planning Session

Dr. John A. Harrel, Jr., a member of the Board of Health and Welfare Planning Council of Pulaski County, took part in the program of the 1963 Citizens Conference on Community Planning at Indianapolis.

Dr. Harrel, who also is a new member of the Little Rock School Board, is helping organize a child guidance center at Little Rock which is expected to be in operation after July. He discussed the County Council's role in the development of the center.

Dr. Robins Tells Rotarians of World Trip

Dr. R. B. Robins, who has recently returned from a trip around the world as one of four official U. S. Representatives to the World Medical Association, gave an illustrated talk to the Camden Rotary Club recently on "Current Observations Around the World."

Dr. Kennedy to Head Clark County Medical Society

The Clark County Medical Society elected its new officers for the year 1963. Dr. J. W. Kennedy was elected President, Dr. L. B. Tilley, Vice President and Dr. H. D. Luck, Secretary-Treasurer. Dr. Eli Gary was chosen as the Delegate to the Arkansas Medical Society and Dr. J. W. Reid was chosen Alternate Delegate.

Dr. Saltzman Elected Member of Executive Committee of the Council on Rural Health of the AMA

Dr. Ben Saltzman of Mountain Home was elected a member of the Executive Committee of the Council on Rural Health of the American Medical Association at a meeting of the Council in Chicago, January 18th. Dr. W. Wyan Washburn of Boiling Springs, North Carolina was elected Chairman and Dr. S. P. Leinbach of Belmond, Iowa, Vice-Chairman. The other executive member besides Dr. Saltzman is Dr. Edmond K. Yantes of Wilmington, Ohio.



PROCEEDINGS OF SOCIETIES

Boone County Medical Society Auxiliary Meets

The auxiliary to the Boone County Medical Society met in January at the Hotel Seville. Bennie Keele, vice president, of the Junior Chamber of Commerce, spoke on the work of the Jaycees and the planned projects.

Dr. Wm. A. Snodgrass, Jr., Little Rock	10.00
The Doctors Building, Fayetteville	21.00
Dr. W. D. Thornton, Texarkana	5.00
Willis-Yates Drug Company, Magnolia	35.00
Dr. John C. Wright, Newport	10.00
TOTAL	\$840.00

CONTRIBUTIONS FROM ARKANSAS
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December 1962	
Boone County Medical Auxiliary	\$ 5.00
Mrs. W. H. Breit, Harrison	5.00
Dr. Eldon L. Caffery, Jonesboro	25.00
Mrs. J. G. Calhoun, Jr., 3603 Potomac Avenue, Texarkana	5.00
Dr. Edward M. Cooper, Jonesboro	25.00
Dr. Wm. G. Cooper, Jr. Donaghey Building, Little Rock	10.00
Craighead-Poinsett Medical Auxiliary	5.00
Mr. Zelik J. Danziger, Texarkana	13.00
Dr. Milton D. Deneke, West Memphis	25.00
Dr. Ellery C. Gay, Little Rock	25.00
Dr. John T. Gray, Jonesboro	10.00
Hempstead County Medical Auxiliary	8.00
E. T. Hutcheson, Magnolia	35.00
Dr. Carl E. Hyman, Pine Bluff	25.00
Dr. C. Lewis Hyatt, Monticello	25.00
Jefferson County Medical Auxiliary	10.00
Dr. Ralph F. Joseph, Walnut Ridge	25.00
G. L. Lobgino, Magnolia	35.00
Dr. Douglas H. Lowrey, Russellville	10.00
Dr. Harold J. Morris, Pine Bluff	10.00
Dr. J. J. Monfort, Batesville	25.00
Dr. Sanford C. Monroe, Pine Bluff	25.00
Dr. Joseph A. Norton, Little Rock	50.00
Dr. Wm. S. Orr, Jr., Little Rock	25.00
Pope-Yell County Medical Auxiliary	10.00
Dr. E. F. Reed, Jr., Pine Bluff	25.00
Dr. Guy U. Robinson, Dumas	100.00
Saltzman-Guinee Clinic, Mountain Home	100.00
Sevier-Polk County Medical Auxiliary	3.00
Dr. Elvin Shuffield, Little Rock	12.50
Dr. J. F. Shuffield, Little Rock	12.50
Dr. Winston K. Shorey, Little Rock	25.00
Dr. Floyd A. Smith, Jr., Trumann	10.00

ANSWER—Electrocardiogram of the Month

RATE: 70 RHYTHM: Sinus
PR: .16 sec. Qrs: .07 sec. Qt: .36 sec.
INTERPRETATION:

Abnormal. Abnormal electrical position of the heart, frequently found with pulmonary disease.

COMMENT:

This patient was observed over a considerable period of time and the rather unusual electrocardiographic changes persisted on repeat tracings. Rather detailed studies were made and it was found that he had pulmonary emphysema and marked polycythemia. He responded well to treatment and later tracings revealed a return to normal of the abnormal T changes present. All studies indicated the presence of cor pulmonale incident to the severe pulmonary disease.



NEW MEMBERS

Sevier County Medical Society announces that DR. FRANK DANIEL has been added to its roster of members. Born at Fountain Hill, Arkansas, his preliminary education was obtained at Arkansas A & M at Monticello, Arkansas. His M.D. degree was received from the University of Arkansas Medical Center in 1960. Dr. Daniel is a general practitioner with his office in the DeQueen Clinic, DeQueen. He is on the staff of the DeQueen General Hospital.

DR. WILLIAM R. SNOW is a new member of Baxter County Medical Society. A native of Hardy, Arkansas, he received his preliminary education from the University of Arkansas. In 1958 he received his M.D. degree from the University of Arkansas. Dr. Snow is a general practitioner with his office at Shiras and Eighth Street in Mountain Home, Arkansas.

A new member of Ouachita County Medical Society is DR. B. D. KING. He is a native of Little Rock, where he received his preliminary education. His M.D. degree was received from the University of Arkansas in 1949. Dr. King practiced in the Air Force from 1949 until 1951; in Jonesville, Louisiana from 1951 until 1954; in Hopkinsville, Kentucky from 1954 until 1957, and in Camden, Arkansas from 1957 until the present. His specialty is radiology and his office is at Ouachita County Hospital in Camden.

Baxter County Medical Society announces that DR. DAVID E. DUCKER has been accepted for membership. Dr. Ducker is a native of Pineville, Arkansas, and his pre-medical education was received at Arkansas Polytechnic College in Russellville. In 1958 he received his M.D. degree from the University of Arkansas. He served in the U. S. Navy from 1958 until 1962. His office is at Salem Clinic, Salem, Arkansas. He is a general practitioner.

DR. EUGENE JOSEPH is a new member of Sevier County Medical Society. A native of Helena, Arkansas, his preliminary education was received from the University of Arkansas. In 1961 he received his M.D. degree from the University of Arkansas School of Medicine. Dr. Joseph is on the staff of the DeQueen General Hospital and his office is located in the DeQueen Clinic, DeQueen. He is a general practitioner.



BOOK REVIEWS

A System of MEDICAL HYPNOSIS, By Ainslie Meares, M.D., B. Agr. Sc., D.P.M., President, International Society For Clinical and Experimental Hypnosis, pp. 484, published by W. B. Saunders Company, Philadelphia and London, 1960.

This textbook of medical hypnosis discusses many aspects of this phenomena. It is written in a scholarly fashion but has a very limited field of interest to most practitioners. The exact niche of medical hypnosis has not been adequately studied by current medical practitioners. This book is easy to read and is well written. It is suggested only to those individuals who are interested in the general field of hypnosis.

COMPLICATIONS IN SURGERY AND THEIR MANAGEMENT, edited by Curtis P. Artz, M.D., F.A.C.S., Associate Professor of Surgery of the University of Mississippi, and James D. Hardy, M.D., F.A.C.S., Professor and Chairman of the Department of Surgery of the University of Mississippi, illustrated, pp. 1075, published by W. B. Saunders Company, Philadelphia and London, 1960.

This book is another of the growing list of textbooks on surgery. It consists of a compendium of complications occurring in surgery and written by outstanding authorities in various fields. Very naturally the book discusses general problems before discussing the more specific conditions; for example, there are chapters on infections, complications of antibiotic therapy, shock, wound complications, blood transfusion complications, hemorrhagic complications, etc. There is an interesting, although brief, chapter on the prevention of spread of cancer by Dr. Warren H. Cole and his associates. The reviewer wishes that Dr. Cole had discussed at greater length his use of chemical substances in preventing the local spread of cancer. Some of the newer fields of surgery are discussed; for example, complications of adrenalectomy are reviewed by Dr. Charles Eckert. References are provided and for the most part are quite up to date; these are at the end of the various chapters. This book is an unusually good volume and is heartily recommended to all practitioners.

CLINICAL OBSTETRICS, by BENJAMIN TENNEY, M.D., Clinical Professor of Obstetrics and Gynecology, Harvard Medical School, Director of the Department of Obstetrics and Gynecology, The Boston City Hospital and BRIAN LITTLE, M.D., F.R.C.S. (C), Associate in Obstet-

rics and Gynecology, Harvard Medical School, Associate Director of the Department of Obstetrics and Gynecology, The Boston City Hospital, Obstetrician and Gynecologist, Boston Lying-in Hospital, pp. 440, published by W. B. Saunders Company, Philadelphia and London, 1961.

The authors have organized this book to bring out many of the complications found during pregnancy. As they stated, "we were motivated primarily by the desire to express clearly and simply the clinical approach to the major problems that are encountered by the obstetrician in private practice." They have succeeded in writing a most interesting and instructive book. Heart disease in

pregnancy and blood pressure in pregnancy are exceptionally well covered. Infections of the urinary tract which is another big problem in the gravid human being, is also well covered. The book covers endocrine and malignant diseases; there are chapters on bleeding, abortion, prematurity, and etc. The style of the book is almost conversational. There are no references. There are virtually no illustrations. Despite these two serious defects, the book is an excellent one and would be of interest to interns, residents and general physicians. It is of less interest to the medical student or the specialist in obstetrics.

TUBERCULOSIS



ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

PNEUMONECTOMY AND LOBECTOMY IN BRONCHOGENIC CARCINOMA

In a comparative study of 5-year survival rates of patients treated for carcinoma by removal of the entire lung and others by the excision of the affected lobe only, it was found that the more radical operation did not increase the chance of survival.

Since a systematic analytical comparison of available data on the treatment of bronchogenic carcinoma by pneumonectomy and by lobectomy was desirable, Dr. Alton Ochsner of New Orleans, who has consistently espoused pneumonectomy for lung cancer, and Dr. Richard H. Overholt of Boston, who in recent years has tended to use lobectomy as the treatment of choice, agreed to permit the Biometry Branch of the National Cancer Institute to compare the survival of their surgically treated patients.

The study group from the Overholt Clinic consisted of 327 surgically-treated patients with carcinoma of the lung diagnosed during 1951-1956. Of these, 211 were pneumonectomies and 116 were lobectomies. X-ray treatment was limited to 19 per cent of the pneumonectomies and 6 per cent of the lobectomies. Only two patients received adjuvant chemotherapy (nitrogen mustard) following pneumonectomy as part of the primary treatment, and one patient received both X-ray and chemotherapy following lobectomy.

M. B. SHINKIN, M.D.; R. R. CONNELLY, B.S.; S. C. MARCUS, B.S.; and S. J. CUTLER, Sc.D., *The Journal of Thoracic and Cardiovascular Surgery*, October, 1962.

The study group from the Ochsner Clinic consisted of 205 patients who were subjected to resection during 1948-1956. All but 15 had pneumonectomies. The standard procedure is the removal of the entire involved lung with an en bloc excision of the mediastinal nodes. At this clinic 65 per cent of the patients who underwent a pneumonectomy received no adjuvant therapy. In 35 per cent, the primary treatment included the addition of X-ray therapy (3 per cent), chemotherapy with nitrogen mustard (27 per cent), or both (5 per cent).

THREE GROUPS OF PATIENTS

There were, therefore, three main groups of patients treated surgically for primary lung cancer: (1) Overholt pneumonectomies, 211 patients, of whom 122 (58 per cent) had mediastinal lymph node dissection; (2) Overholt lobectomies, 116 patients, of whom 41 (35 per cent) had mediastinal lymph node resection as the exposure allowed; and (3) Ochsner pneumonectomies, 191 patients, of whom 181 (95 per cent) had mediastinal lymph node dissection, usually en bloc with the lung.

The 5-year survival rate was definitely higher for patients treated by the Overholt lobectomy (27 per cent) than for patients treated by pneumonectomy (19 per cent at the Overholt Clinic and 15 per cent for the Ochsner Clinic).

The single most important determinant of prognosis is probably the anatomical extent of involvement. The three groups of patients

analyzed were classified as "localized" cases, i.e., those in which the tumor was confined to the lung or bronchus and in which no direct extension to neighboring tissues or metastasis was found, and "not localized," i.e., those in which there were regional lymph node metastases or extension of the tumor beyond the lung.

The proportion of the more favorable, localized cases is highest in the Overholt lobectomy group, 52 per cent in contrast with 21 and 26 per cent in the Overholt and Ochsner pneumonectomy groups, respectively. Thus, a major factor in the better survival following lobectomy is the greater proportion of patients with localized tumors selected for lobectomy.

LOCALIZED TUMORS

Among localized cases, the observed 5-year survival rates for the three operation groups were practically identical. Among non-localized cases, the survival rate was significantly lower following the Ochsner pneumonectomy than for Overholt patients treated by pneumonectomy; the results following the Overholt lobectomy were not significantly different from either pneumonectomy group.

The clinical significance of these observations is difficult to evaluate since the considerations which led to the use of more extensive surgery in some cases and less in others are not fully known. However, the available evidence suggests that less extensive surgical procedures are related to survival rates that are at least as good as, and perhaps better than those recorded following more extensive surgery.

The data from the Overholt and the Ochsner clinics were compared with similar data from 99 hospitals in the United States on more than 8,800 cases, as reported by the End Results Group of the National Cancer Institute. The end results are similar and emphasize the universally grim prognosis of this neoplastic disease.

The 5-year survival of approximately 8 per cent among all patients with bronchogenic carcinoma seen at the two clinics compares with 6 per cent in the 99 hospitals. This small salvage is achieved only by surgical resection.

The available data lead to the following conclusions:

1. Survival after surgical resection was primarily determined on whether the tumor was

localized or had extended to lymph nodes or contiguous tissues beyond the lung.

2. Survival in patients with localized lung cancer was similar whether lobectomy or pneumonectomy was performed. The available evidence does not clearly delineate the efficacy of lymph node dissection.

3. Survival of patients with non-localized carcinomas was lower following pneumonectomy with mediastinal lymph node dissection than after more limited pneumonectomy or lobectomy.

4. Survival in these series was not demonstrably improved by the addition of X-ray therapy or chemotherapy with an alkylating agent.

5. Tumors classified as being histologically undifferentiated had a graver prognosis than the epidermoid neoplasms or the adenocarcinomas.

6. Survival was not demonstrably related to the size of the primary tumor, the site of the primary tumor within the lung, or the age and sex of the patient.

In regard to Point 3 it may be said that the less extensive operations do not save more patients, but the more extensive operations increase mortality.

The tragic limitations of effective treatment of bronchogenic carcinoma, and the established causation of an important proportion of this neoplasm by cigarette smoking, make the disease a challenge to preventive medicine as well as to cancer research.

ANSWER—What Is Your Diagnosis?

#11-31-55

12 year old white female

Difficulty in walking and pain in both hips.

DIAGNOSIS: Slipped capital femoral epiphysis.

X-RAY FEATURES: There is widening and irregularity of the epiphyseal line of proximal left femur with definite downward and medial displacement of the femoral head in relation to the neck. The epiphyseal line on the right is widened and irregular and is apparently the site of very early slippage. This situation is much more commonly seen in obese adolescent males.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579-P to be sent to Arkansas Medical Society, 218 Kelley Building, Fort Smith, Arkansas. Published monthly under direction of the Council, Arkansas Medical Society, Vol. 59, No. 12. Subscriptions \$3.00 a year. Single copies 50 cents. Entered as a second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

SOME RECENT ADVANCES IN ANESTHESIOLOGY

Vincent J. Collins, M.D.*

Presented Monday, April 30, 1962

Annual Session Arkansas Medical Society

Recent advances in Anesthesiology have been over a wide spectrum of scientific investigations. The most spectacular have been related to basic mechanism. We have left the age of organ medium. Indeed we are now entering an era of cellular and molecular medium. Four subjects have been selected for discussion.

I—THEORIES OF NARCOSIS

MOLECULAR MECHANISMS OF ANESTHETIC STATE

Most theories of narcosis have essentially been descriptive. Correlations between either physical or chemical phenomena and attributes of the agents involved and the observed altered state have been made but no valid mechanisms established. Drugs have in varying ways disrupted the normal cell processes but the nature of the disruption has not been established. Indeed alteration of cell process may be induced and maintained many ways and a single common pathway may not exist, though the objective and final target expressed as the state of narcosis may be the same. In recent years knowledge at a more finite level has accumulated.

LIPID FACTORS (Sears).—Cell membranes are conceived as 1) two layers of lipid molecules with each molecule oriented as if it were the peripheral tip of a spoke from the center of the cell and 2) lipid layers packed in mono molecular sheets. 3) Structural strength determined by a protein supporting net work. The lipid molecules act as a barrier to the passage of water and

water soluble ions. Calcium attached to the polar ends of the lipids of the cell membrane is the key to keeping the membrane tight to water. Thus it acts as a barrier to movement of sodium and potassium and permits their accumulation outside and inside respectively.

Xenon anesthesia has provoked large scale speculation on the mechanism of narcosis. It is a chemically inert inorganic substance which is 20 times more soluble in lipids than in water. The action on paramecia reveals that exposure causes the cell surface to expand, slow total movement and even burst. It is assumed that the gas molecules dissolve between the lipid molecules.

PROTEIN FACTORS.—Though most of our anesthetic agents have a high lipid solubility. A significant portion appears to be bound in the body by some other component. Thus, approximately 53% of cyclopropane, 41% of ethylene and 19% of nitrous oxide is not bound by either water or lipid of whole blood. (Featherstone) Since whole blood protein is approximately 18% by weight and is the largest component other than water it is natural to seek a relationship. Indeed experiments indicate that the quantity of cyclopropane dissolved in solutions of purified human serum albumen increase linearly with increasing protein concentrations. This represents a phenomena of gas-protein interaction. On the basis of cell protein structure two hypotheses are possible: 1) that gas protein interactions are the result of the inert gas molecules penetrating into the interior hydrophobic portion of protein molecules and 2) that the gas molecules are held at the surface of proteins by induced electric dipoles on the surface of the protein molecules (DeBon).

*Chairman, Division of Anesthesiology, Cook County Hospital; Professor of Anesthesiology, Cook County Graduate School of Medicine, and Associate Professor of Surgery (Anesthesiology), Northwestern University School of Medicine, Chicago, Illinois, Past-Chairman, Section on Anesthesiology of the American Medical Association.

MICROCRYSTAL THEORY OF PAULING (HYDRATE THEORY).—This theory is based on the molecular properties of anesthetic agents and the aqueous molecular construction of brain tissue. Brain tissue is 78% water. It is suggested that unconsciousness is induced when submicroscopic crystals are formed in the aqueous part of the brain substance. Large numbers of water molecules are capable of aggregating under a variety of circumstances. Anesthetic agents are able to fit into the interstices of these water molecules and thereby stabilize them. Water molecules appear to associate into different sizes and provide different surface depressions or cavities. Three such cavities or surface chambers are recognized: The smallest is formed of 20 molecules the next larger one of 24 molecules and still larger one of 28 molecules.

These chambers are probably forming and reforming and will accommodate anesthetic molecules of different sizes. Water molecules upon meeting in a suitable arrangement are stabilized or "frozen" in a hydrate microcrystal. These crystals do not expand. Less than 0.1% of the aqueous constitution of the cells need be converted to microcrystals to produce unconsciousness.

Explanation of the action of many anesthetic agents is possible by this theory. Thus xenon which is relatively inert exhibits an attraction to water molecules and is capable of forming microhydrate crystals. Nitrogen under high pressures may stabilize hydrate microcrystals and account for the narcosis of divers. Helium does not stabilize water molecule aggregates.

Similarly it is readily appreciated that simple cooling to 8-150 C will cause these hydrate microcrystals to form and thus explain the unconsciousness of hypothermia.

Ordinary anesthetics are readily attracted to the water aggregates and can be accommodated readily to form the crystals. Pauling has suggested that anesthetic agents of three different sizes could be mixed to produce a better or more complete anesthesia.

A mixture of tetrafluoromethane, trifluoromethane and trifluoroethane would meet these specifications. Pauling notes that mixing chloroform and other anesthetics with water under simple circumstances in the laboratory causes the formation of tiny microcrystals.

ACTION OF LOCAL ANESTHETICS

Many fundamental discoveries have led to a

more complete understanding of the action of local anesthetic agents. Such findings have been anatomical, physiological and biochemical. In each instance, the cellular and molecular approach is evident.

HISTO CHEMISTRY OF NERVE FIBER.—Histologically the nerve fiber is like a cable with a low resistance core of cytoplasm surrounded by a high resistance insulating membrane. The insulating neuromembrane is rich in lipoids and metallo proteins. It is a concentration of lipo proteins, to the thickness of a few molecules, to form a surface or plasma membrane. It appears that the more superficial portion of the membrane, is a lipo protein phase while the deeper layer of molecules consists of metalloproteins. This membrane surrounds the salt rich aqueous axoplasm. The metallic ions in this aqueous phase are probably the instruments of conduction. The lipo protein surface membrane is permeable to potassium and chloride but impermeable to sodium, to proteins and to amino acids. The polarization of the membrane and the potential difference is determined by a) Permeability Characteristics and b) the sodium pump extruding sodium. Outside the membrane is the low resistance medium of the salt-containing tissue fluid. In the resting state the inside of the membrane is charged negatively with respect to the outside.

NATURE OF NERVE CONDUCTION.—The nerve impulse is a transient wave of electrical excitation which travels from point to point down the length of a nerve fiber. Physiologists early observed that the nerve impulse could be detected as a brief wave of electrical negativity along the outer surface. In addition, it was established that the cells of body tissues contain a high concentration of potassium ions, while the tissue fluids had a high concentration of sodium ions.

In 1902 Bernstein proposed the first theory of impulse conduction based on the above knowledge. He suggested that (of the nerve membranes) selective permeability to potassium and impermeability to sodium accounted for the resting potential. In this dynamic equilibrium the negative charge on the inside of the membrane opposes the tendency of the positively charged potassium ions to escape.

During the passage of an impulse the membrane momentarily loses its selective resistance to the electro-chemical pressure of the sodium ions

on the outside. Nachranson has demonstrated that acetylcholine is not only released at synapses but along the course of a nerve fiber. This ubiquitous neurochemical combined with surface proteins to decrease the membrane permeability. Thus, potassium escapes from and sodium enters the cell with the result that the membrane potential falls.

Electric currents generated by the movement of ions then spread the loss of selectivity to the next section of the membrane and the impulse then travels down the length of fiber by self-depolarization regeneration.

MOLECULAR CONFIGURATION.—Many compounds of different chemical groups are capable of producing local anesthesia. As indicated, the most effective local anesthetics with few exceptions are amines. The configuration associated with these clinically effective agents has been elucidated by Lofgren.¹⁰ The anesthesiophoretic groupings are three in type and consist of an aliphatic chain or intermediate group. To one end is attached an amino group and to the other end is attached a hydrocarbon residue. (Fig. 1) The intermediate group is the pivot group. It is isoteric and when of such a length as to separate the nitrogen atom from the carbon bearing hydrocarbon residue *by an appropriate distance*, it provides optimal activity. This distance is 7 to 9 Angstrom units. The Angstrom units. The nitrogen atom of the amino group is hydrophilic. It forms a tertiary amine. Usually an alkyl group is attached as one radical and an alkyl or hydrogen is attached as the other. The hydrocarbon residue is usually of an aromatic type, but may be aliphatic or cyclic. It is lipophilic. By virtue of these two groups local anesthetics possess varying degrees of water and lipid solubility. The water solubility is essential for transport of the drug to the nerve fibers and for subsequent ionization in the axoplasm; where the lipid solubility is essential for migration into the axon. Tainter has emphasized that a balance between these two properties is necessary for activity.

MECHANISM OF ACTION OF LOCAL ANESTHETICS.—Factors important to the action of local anesthetics are physio-chemical in nature. All important local agents are salts of basic substances. These salts of the local anesthetics form strongly acid solutions. However, the buffer capacity of body tissues is high and

this minimizes irritation phenomena. The free base is the active constituent and liberated in the presence of an alkali. Bignon was the first to note that the alkalization of cocaine increases the rapidity of its action and its potency. The milky alkalized suspension of cocaine was introduced into surgery as "cocaine milk".

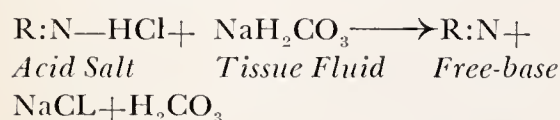
The expression of this fundamental effect of pH on activity is simply that important local anesthetics are salts of basic substances and the free base is the active component (the pharmacodynamic agent) which is liberated in the presence of an alkali; in man this is the alkaline tissue fluid. Thus, addition of a few cubic centimeters of dilute sodium hydroxide (N/100) solution to solutions of the hydrochlorides of cocaine or procaine produces a more potent solution. The concentration which just produces a discernable effect (threshold concentration) in terms of either sensory or motor block is much lower than when the hydrochlorides are used alone; the duration is longer, and the onset is earlier. Such experiments indicate that the bases may be 4 to 8 times as potent as the hydrochloride salt. On the other hand, the addition of an excess of alkali to the anesthetic solution will precipitate the base and the activity will be diminished.

Each drug has its own pH at which precipitation occurs. For procaine it is pH of 8.4. A practical application of this fact is that solutions of local anesthetic agents should be contained in alkali free glass. Cleansing of glassware should be meticulous and no soaps or detergents should be used. Another practical fact is that local anesthetic agents will be rendered impotent in acid media. A simple reaction of neutralization will exist. Thus, the agents are often ineffective when injected into inflamed tissues. The acidity of pus for example is pH 5.0. The action of local anesthetics is a surface phenomenon, and molecular in nature. These agents provide a large free surface and the molecules of the agent must come in contact with the fiber as free base. Conventional local anesthetic agents have active groups which act by polar association.

In the orientation of the anesthetic molecule the hydrophilic amino group is directed into the aqueous phase of the nerve cytoplasm and the aromatic hydrocarbon or lipophilic group is directed into the lipid phase of the surface plasma membrane. The achievement of this orientation is accomplished in two steps: 1) The process of penetration dependent on extracellular hydroly-

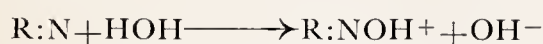
sis and the presence of the lipophylic group of the free base and 2) The process of fixation dependent on intracellular ionization.

PROCESS OF PENETRATION.—It is considered that the first chemical step after a local anesthetic is injected is the neutralization of the acid salt by tissue fluid to liberate the free base at the pH of the extracellular fluids. The reaction is as follows:



The undissociated free base is a tertiary amine and has the ability to penetrate the cellular membrane. This property of penetrability is essential for anesthetic activity. It is dependent on the presence of the free base and the lipophilic characteristic of a portion of the molecule.

PROCESS OF FIXATION.—Once the free base penetrates the cell membrane of the nerve fiber in an oriented fashion it undergoes dissociation in the intracellular aqueous phase of the nerve axoplasm. This dissociation may be depicted as follows:



The cationic form of the anesthetic agent, now combines with cellular constituents, especially metallo-proteins which have a negative charge. The net result is probably to stabilize the nerve fiber membrane. Impulses cannot induce depolarization at these sites and a state of blockade exists. Ionic migrations cannot occur. In myelinated nerves, the agents are active only at the Nodes of Ranvier. It is to be noted that the final active chemical, namely, the cationic form of the anesthetic base, is a *quaternary amino derivative*. As such it is similar to those compounds like curare which are capable of blocking transmission between spinal motor nerves and effector muscle cells. One may speculate that a common mechanism exists between transmission in axons and at synaptic junctions. Regarding the actual intracellular reaction or combination of the cationic form with constituents, the following hypotheses are presented:

1. A reversible coagulation with neuro-metallo protein.
2. Depression of acetylcholine production.
3. Closure of Surface areas to acetylcholine.
4. Competition of local anesthetics for acetylcholine receptors.

EFFECT ON METABOLISM.—During transmission of an impulse over a nerve fiber there is an increased oxygen uptake (Doty). Such increased uptake is prevented by local anesthetics. However, depolarization of a nerve with potassium solutions, thereby causing blockade, actually increases oxygen consumption (Geddes).

Indeed, the resting respiration of nerves (Sciatic in rabbit) is inhibited. There is interference with intracellular oxidation of glucose but not with anaerobic glycolysis. It appears that the interference is due to a blockade of the enzymatic chain at the Cytochrome C-Cytochrome oxidase level.

ABSORPTION.—After injection of a local anesthetic agent and exposure of a given nerve to its effect, the agent is diluted in the extracellular fluid and taken up by capillaries. Ultimately, all of the agent enters the blood stream.

The blood supply to a tissue is a crucial factor in determining rate of absorption. In turn, the site of injection and variations in circulation are important. Obviously, direct intravenous injection provides the most rapid absorption rate and produces high plasma levels. Topical application to many mucous membranes results in the next highest plasma levels. Indeed, application to pharynx and tracheobronchial tree may produce blood levels comparable to slow intravenous injection. After tracheal instillation the levels are higher than after pharyngeal.

Particles introduced by nebulization gravitate to alveoli and are rapidly absorbed. This is more pronounced in the upright than the supine position.

Intramuscular injections of local anesthetic agents provide the next highest levels. The lowest levels occur after subcutaneous and intracutaneous injection. Vasoconstrictor agents further limit the absorption of agents from these sites.

Steinhaus, has studied absorption from mucous membranes of esophagus and stomach and concluded that there is no appreciable absorption from this site.

Explanation of the lack of absorption may be related to one of the following:

1. The generally poor absorption of many drugs from the stomach—local anesthetics follow the pattern.
2. Rapid destruction in stomach or in the liver.

Absorption through the intact urethral mucosa is very slow. However, appreciable blood levels

result when the mucosa is traumatized by instrumentation and reactions are frequent.

No absorption occurs through unbroken skin, but if skin is abraded significant plasma levels are attained. Adriani and Campbell found that application of aqueous solutions of the common anesthetic agents resulted in peak concentrations in 6-10 minutes. In burn sites the absorption depends on the degree of the burn. There is very little absorption from first and second degree burns. But, if a raw surface or open vesicles were present, detectable blood concentrations were obtained. Local anesthetics should generally be applied with great caution to granulating or raw burn surfaces.

DETOXICATION.—Little or no destruction of local anesthetics occurs in situ at the tissue sites of injection. This is understood on considering that chlorprocaine provides a local block for more than one hour while the agent undergoes complete hydrolysis in plasma within 5 minutes.

Some dilution of the agents occur at the site of injection by the interstitial fluids. Further dilution naturally occurs when the agent enters the blood stream.

Detoxification is primarily accomplished by liver mechanisms. Though some breakdown may occur in the kidney, muscles and plasma (Brodie). Most local anesthetics are broken down by:

1. Hydrolysis
2. And enzymatic acceleration of hydrolysis.

The breakdown products in turn may be conjugated or methylated by the liver and then excreted by the kidney. Some of the products are also eliminated unchanged, while a portion of the intact unmetabolized anesthetic agent may be eliminated unchanged in the urine (Coles).

The overall rate of detoxification is dependent on the metabolic state of the individual. Acceleration of hydrolysis is accomplished by enzymes chiefly furnished by the liver. The group of enzymes active in the process are called esterases. Formerly, they were called procaine esterases (Kish). However, they are non-specific and have been shown to be identical with the pseudocholinesterases (Foldes). Many apparently diverse substances are affected by this enzyme group including, succinylcholine, acetylcholine and procaine. On the other hand, the anticholinesterases do not inhibit the rate of hydrolysis of local anesthetics in vivo.

SUMMARY:—Some basic facts of local anesthetic detoxication are summarized:

1. Ester and amide type compounds undergo partial or complete hydrolysis.
2. Ester compounds are more easily hydrolyzed than amide or ether type of linkage.
3. Complex esters such as cocaine or tetracaine are hydrolyzed more slowly. (Tetracaine at 1/5 the rate of procaine, piperocaine at 1/6 the rate of procaine).
4. The amides are resistant to cleavage.
5. The kidney eliminates a portion of the local anesthetic agent unchanged. It also eliminates the breakdown products.

OTHER ACTIONS:—Local anesthetic agents possess the primary attribute of blocking nerve conduction. This makes them useful. They also possess many secondary actions which are mild and generally of little clinical use. Varying degrees of anti-histaminic, anticholinergic, narcotic, and myoneural blocking activity are evident.

The anti-histaminic activity is of a low order and is estimated to be about one-hundredth of common anti-histaminics such as diphenyl hydramine. Nevertheless, intravenous procaine has been used to treat various allergic states. The anti-cholinergic activity is even less pronounced.

On the other hand, many anti-histaminics have some local anesthetic activity. Thus, tripelennamine has been used for topical anesthesia of pharynx and larynx. Local anesthetic activity has been demonstrated for ephedrine, meperidine, atropine and many other similar agents.

TABLE I
SUMMARY

DIFFUSIBILITY	{ 1. Determined by water solubility. 2. Hydrolysis produces free base with polar group.
PENETRATION	3. Lipophylic pole penetrates membranes.
FIXATION	{ 4. Hydrophylic pole oriented toward axoplasm. 5. Hydrophylic pole ionizes in aqueous phase. 6. Ionized form combines with cell constituents.
DISTRIBUTION	7. Concentration gradient is at first from extracellular space to intracellular space.
ABSORPTION	8. As equilibrium is achieved between the extracellular and intracellular compartments, molecules progressively enter the vascular space.
ACTION	9. Gradient becomes reversed and nerve fiber concentration diminishes. A critical threshold concentration is needed to produce a block. Each anesthetic has a particular

critical concentration. When concentration is lower blockade ends.

- DISPOSITION 10. As extracellular molecules enter vascular compartment, they become enzymatically hydrolyzed.

MANAGEMENT OF CONVULSIONS

Convulsions from any cause are accompanied by a high mortality rate and past methods of management have not been too effective. Among the causes, local anesthetics are especially known to produce convulsions and a plan of treatment should be carefully established by every physician and every hospital—for reactions to local anesthetics are not restricted in time or place.

Barbiturates have served for many years as the key to prophylaxis and therapy. However, a careful study reveals that results are poor. Pre-anesthetic administration has neither prevented convulsions or most other reactions but has often masked the disturbance. Indeed, to be effective therapeutically against central nervous system reaction, a subconvulsant dose must be given and often times complements one dire condition with the additional disturbance of barbiturate poisoning.

In addition the drug depression of the barbiturate synergizes with the period of post-reaction depression.

Regardless of the type of reaction or of the time (immediate or delayed) the objective of treatment is the same—to provide the tissues and cells of the body with oxygen by restoring the oxygenation system. This is accomplished by maintaining 1) respiration and 2) circulation. The first step is to institute artificial respiration, a) by creating a clear airway (head tilt and chin lift method) b) by ventilation: mechanical—the use of a bag and mask assembly or a resuscitator of hand type ambu; or manual—mouth to mouth technic. c) by supplying oxygen in an enriched breathing atmosphere.

The second step is to maintain circulation. This is accomplished by closed chest cardiac massage.

In the initial phase artificial respiration is the *sine qua non* and the only drug necessary is oxygen. Indeed this is virtually the only absolutely necessary drug.

During convulsions which are continuous one may find difficulty in inflating the lungs. When faced with this problem, the use of a peripheral muscle relaxant (curare or succinylcholine) is indicated.

If reactions other than convulsions occur, it is important to realize that oxygen again is the prime drug and that assistance to respiration is necessary. It is believed that every physician's office or treatment area should be provided with a cylinder of oxygen equipped with a regulator, flowmeter and delivery tube to a bag and mask assembly. Whenever a patient is treated with a potent drug the above equipment should be ready with the valve turned on. Any procedure short of this is deficient. The equipment may not be used for several years but the one time when it is needed is unpredictable.

SHOCK: A DIFFERENT APPROACH TO THERAPY NEED FOR NEWER ATTITUDE (11).

—It is apparent that the classic concepts in the management of shock are not without fault and the shock state is still attended by a very high mortality. The past twenty years have been a period of intensive study and progress in the surgical and medical management of shock. Antibiotics, vasopressors, steroids, electrolytes, and unlimited supplies of whole blood have become every-day additions to our armamentarium in the therapy of shock. Nevertheless, the clinical entity of irreversible shock remains.

PATHOGENESIS OF SHOCK. (Fig. 2)—Various initiating factors may produce pathological changes in the physiology of the cardiovascular mechanism. Thus, hemorrhage, or any factor producing a discrepancy between the capacity of the vascular bed and the actual circulating volume will reduce the *effective circulating volume* and the flow to the tissues. With reduced flow from whatever cause there will be reduction in the delivery of oxygen to the tissues and thus, **ANOXIA**.

PHYSIOLOGIC ADJUSTMENTS TO SHOCK. The physiologic adjustments to acute hypovolemia have been delineated by a number of observers^{12, 13, 14}. The immediate response to hemorrhage is vasoconstriction at the level of the metarteriole. This increases under adrenergic influence with the resultant closure of the precapillary sphincters and the shunting of blood with high oxygen tension back into the central circulation by direct arterio-venous communications. With the extreme vasoconstriction and arterio-venous shunting which occurs as the stressing phenomenon continues, peripheral tissues in the extremities, the splanchnic bed, the liver,

and the kidneys may become *anoxic*.

PREVENTION OF IRREVERSIBLE PHENOMENA.—It has been observed by many investigators that the irreversible phenomena in severe shock can be prevented or delayed by a number of different methods of bringing about blockade of the nervous system. It was concluded that the irreversibility of shock may be caused by bodily reactions which are secondary to the hypovolemic state and which are mediated via many pathways.^{15, 16}

Of the agents which have been found to influence the responses to a wide variety of noxious stimuli, chlorpromazine is perhaps the outstanding example. Courvoisier¹⁷ described an amazingly large number of actions manifested by the drug including gangliolytic, adrenolytic and anti-shock properties. In addition the drug was found to enhance the potency of a number of analgesic and central depressant drugs.

Animals pretreated with chlorpromazine have been shown to survive degrees of trauma and hemorrhage which were universally fatal to untreated groups.¹⁸ Hershey and his co-workers^{19, 20} noted that chlorpromazine is capable of eliminating or attenuating many of the decompensatory phenomena associated with the irreversible phase of the shock syndrome produced by trauma or hemorrhage.

Recent reports have shown improvement in mesenteric blood flow and renal blood flow following the administration of chlorpromazine to animals *already* in shock and increased survival time in these animals.^{14, 21, 22}

The fact that *pretreatment* with various ganglionic blocking agents is protective to animals subjected to shock has been established. The most notable of these agents has been chlorpromazine.

More recently Converse, McKechnie, and Boba²³ reported 8 cases of extreme shock in human subjects which were treated with Arfonad. Others have also reported occasional cases of shock presumably benefited by ganglionic blockade.²⁴

In 1958 at Bellevue Hospital it was decided to treat a large series of cases of hemorrhagic shock in this manner to test the validity of the concept that ganglionic blockade may be beneficial in the management of such cases. Chlorpromazine was chosen as the agent of ganglionic blockade because of the wide experience with its use in past investigations.

METHOD.—The present study in profound shock was carried out on 385 cases of hemorrhage. Conventional premedication was ordered for all patients as indicated by their pre-operative condition. Chlorpromazine was also administered to all patients, except the control groups, either pre-operatively and/or during the operation. The dose of chlorpromazine varied from 10 mg. to 100 mg. in divided doses. An adequate dose was judged as having been given when the patient's color was pink, capillary refill was good, and in general the patient appeared to be perfusing all his tissues adequately. Whenever possible blood replacement was restricted until the hemorrhage was surgically controlled. No attempt was made to raise blood pressure above a standard figure. Until bleeding was controlled blood replacement was limited to that necessary to maintain vital signs at a normal perfusion level. After bleeding was controlled blood replacement was undertaken rapidly until the normo-volemic state was judged to have been reached. Almost all cases were done with cyclopropane endotracheal anesthesia. Use of vasopressors was discouraged, though some patients received metaraminol or levarterenol pre- or post-operatively at the surgeon's insistence. Surgery and anesthesia were performed by the resident house staff at Bellevue Hospital and Cook County Hospital. Patients were considered to have survived if they were alive 14 days after surgery.

Patients were separated into three groups and each group was further divided into the control and treated patients.

Group I: Consisted of patients requiring emergency surgery because of massive gastrointestinal hemorrhage with shock or impending shock. All patients were classified into physical status VI and VII. Of these patients, 51 received chlorpromazine, the remaining 79 acted as controls.

Group II: Consisted of patients with shock unrelated to G. I. hemorrhage. This included patients in shock from all other types of hemorrhage and trauma and 86 such patients were investigated. 112 patients of the control group were operated before October, 1958.

Group III: Patients requiring massive transfusion greater than 5 pints of blood intraoperatively and developing shock in the intraoperative period. Thirty-six received chlorpromazine and 32 that did not receive the drug acted as controls.

RESULTS.—In Groups I, II, and III the mortality rates of the chlorpromazine treated pa-

tients were markedly less than the patients treated classically, 27.5%, 11.6% and 22.2% respectively compared to 43%, 28.5% and 53.1%.

Although the total patient population here is only 386, the trend is definite toward greater survival in the chlorpromazine groups. A noteworthy and striking observation is the complete absence of post-operative renal depression in all 173 cases treated with chlorpromazine. (No post-operative anuria in chlorpromazine groups compared with 8.8%, 9% and 6.3%.) This has traditionally been a problem following surgery and shock. Also noteworthy is the complete absence of cardiovascular complications in these same patients post-operatively.

OBSERVATIONS ON RENAL FUNCTION.—A striking observation of chlorpromazine treated patients was that post-operative renal depression was not observed. Neither anuria or oliguria was seen. Indeed the average urinary output in the first 24 hours was 1,275 mil and it was higher on subsequent days. The range an output was 900 mil to 2,100 mil. This traditional problem of surgical shock was thus effectively eliminated. (In contrast the average urine output in non-chlorpromazine treated patients was always under 300 mil with an average of 175 mil. Also 8% of the patients had less than 50 mil of urine output in first 24 hours.)

CONCLUSIONS AND COMMENTS.—No categorical conclusions are drawn from this series of 385 cases. However, it would seem that some clear-cut trends are demonstrated regarding the treatment of hemorrhagic shock which deserve further consideration and investigation.

1. Tissue perfusion and oxygenation are probably the most important factors which contribute to the outcome of a patient with shock.

2. Systemic blood pressure as recorded by auscultation may be no reflection of blood flow, perfusion, and oxygenation in certain vital organs.

3. The use of vasopressor agents to maintain blood pressure by further vasoconstriction may cause irreparable tissue anoxia thereby worsening rather than improving perfusion and oxygenation.

4. Chlorpromazine seems to effectively overcome the severe vasoconstriction which occurs in profound shock and allows at least temporary life-sustaining perfusion of the kidneys, splanchnic bed, extremities, brain, and heart even at low

blood pressures until normovolemia can be restored.

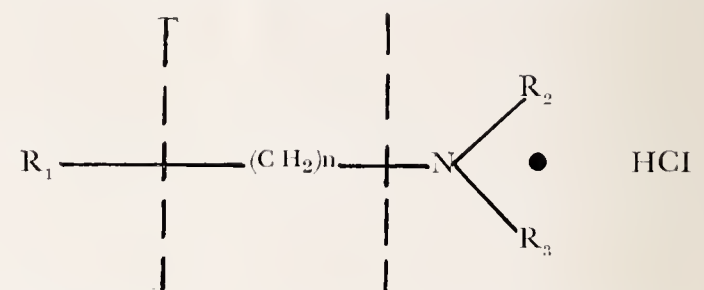
5. A re-evaluation of the classic treatment of shock is in order.

6. In the future hemorrhagic shock may be treated as follows:

- A. Ganglionic blockade to prevent irreversibility.
- B. Immediate surgery to stop bleeding—without pre-operative stabilization.
- C. Sufficient volume replacement to only produce stability and thus to reduce the incidence of untoward and not infrequently fatal reactions to blood transfusions.

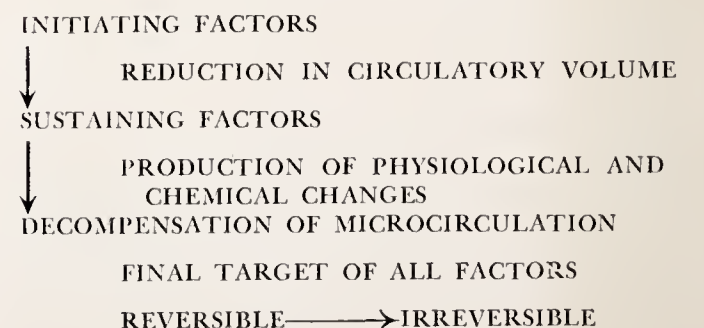
SUMMARY.—In summary, 385 cases of severe hemorrhagic shock occurring before or during operation were managed with the aid of a sympatholytic and anti-stress agent (ganglionic block in part) name chlorpromazine. Vasopressor agents were not employed. Considering overall mortality, urinary output, and lack of adverse cerebral and myocardial effects this method of management seems to offer a better prognosis than previous classical methods of shock management.

FIG. 1.
CONFIGURATION ASSOCIATED WITH CLINICALLY EFFECTIVE LOCAL ANESTHETIC AGENTS ANESTHOPHORETIC GROUPINGS



HYDROCARBON RESIDUE	ALIPHATIC CHAIN	AMINO GROUP
Lipophilic	Pivot	Hydrophilic
Cyclic	Intermediate Group	R ₂ Alkyl
Aromatic Group	70-90 Angstroms	R ₃ Hydrogen or Alkyl.
Carboxy Acid	Isoteric	Positive Charge
Negative Charge		

FIG. 2.
PATHOGENESIS OF SHOCK



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Highlights of Regulations of ADP

Regulations Requiring Taxpayer-Account Numbers

By American Medical Association Legal Department

Under authority contained in Public Law 87-397 (Oct. 5, 1961), relating to taxpayer-identifying numbers necessitated by the installation of the automatic data processing system by the Internal Revenue Service, the Commissioner of Internal Revenue, on August 24, 1962, adopted regulations requiring taxpayers and payers of income to obtain and use identifying numbers. The regulations term the number prescribed for use by an individual an "account number." Since 140 million Americans already have Social Security numbers, it was decided to use these numbers to avoid the inconvenience of obtaining other numbers. Thus, the account number which an individual will indicate on a return or other related document will also be his Social Security number.

Unless a physician is or was ever an "employee", it is unlikely that he will have a Social Security number since doctors of medicine who are self-employed are excluded from coverage under the Social Security system. However, since *every* person required to make a return, statement, or other document for any period commencing after 1961 with respect to his tax liability, must have an account number, physicians will have to obtain such numbers even though they are not covered under the Social Security System.

According to the regulations, application forms for use in obtaining account numbers will as far as possible be furnished *without* request during 1962 to taxpayers needing numbers. Thus, a taxpayer is not required to file an application for an account number during 1962 *unless* furnished with an application. A taxpayer who has been supplied with an application form *must* file it in accordance with the instructions for such form. *After* 1962, an individual needing an account number *must* file an application for an account number on either Form SS-5 or Form 3227. An application form may be obtained from any District Director, or any District Office of the Social Security Administration.

An individual engaged in a trade or business

is also required to obtain an identifying number which is termed an "employer identification number." For this (an our) purpose, an individual is considered to be engaged in a trade or business if any return is required to be filed by him as an employer (other than a household employer) with respect to his liability for the Social Security taxes imposed under the Federal Insurance Contributions Act and the provisions of the Internal Revenue Code which require an employer to withhold income taxes from the wages of employees. Thus, such an individual may not only have an account number but an employer identification number. And, under the regulations he is required not only to include his account number in the appropriate return, statement or other document but also to include his employer identification number in the schedule provided for reflecting profit or loss from a business or profession.

Obviously, a physician-employer is required to obtain an employer identification number if he doesn't already have one. This is unlikely if he has been an employer for some time. If a number has not been assigned then application therefor must be made on Form SS-4 to any District Director or any District Office of the Social Security Administration office. Referring to the requirement as to the inclusion of account numbers and employer identification numbers, a physician employer would have to include his account number on his income tax return (or declaration of estimated income tax) and his employer identification number on Schedule C of Form 1040 (Profit (or Loss) from Business or Profession).

An income tax return or a declaration of estimated income tax filed jointly by a husband and wife need include only the account number of the husband. However, a wife's account number must also be shown if, for the taxable year covered by the return or declaration, the wife has (a) separate gross income of \$600 or more, or \$1,200 or more if she has attained the age of 65 before the close of the taxable year, (b) self-employment income, or (c) income (such as wages,

dividends, or interest) paid to her otherwise than with her husband which the payer thereof is required to report on a return or statement of information.

The law and regulations impose a penalty for failure to include the identifying number in any return, statement, or other document, or when otherwise required. The penalty is \$5 for each such failure.

The foregoing is merely intended to highlight

the important aspects of the new regulations. However, it may be that, for the average taxpayer, this discussion will suffice. At least, it will serve as a good background for the application forms which have to be filed.

The pertinent income tax regulations are as follows: Regulation Sections 1.6109-1, 31.3402 (f) (2)-1 (d), 31.6001-5, 31.6011 (b)-1, 31.6051-1, 31.6109-1, 301.6109-1, 301.6676-1, and 301.7701-11 —301.7701-13.

DISTRIBUTION OF PHYSICIANS IN ARKANSAS

C. C. Long, M.D.*

THE EDUCATION COMMITTEE of the Arkansas Medical Society has concerned itself during the past year with the problem of physician distribution throughout the State of Arkansas. The Committee's objective in studying this matter is to aid the Medical School in its efforts to have accurate knowledge of the medical needs of the state. The administration of the medical school is desirous of this information as an aid in its guidance of physicians-to-be.

As a first step in attempting to determine where doctors are needed within the state, it was necessary to determine what the present coverage is. Current records in the office of the Arkansas Medical Society were reviewed by the Executive Secretary to supply data regarding location and age of doctors, number of and population of towns without doctors, distance of towns without a doctor to the nearest doctor, and distribution of hospital and nursing home beds. The object of this paper is to present some of the information supplied in this data.

A consideration of medical service coverage both present and future demands that cognizance be taken of the age distribution of the doctors involved. The following tabulation presents this information regarding the 1,544 physicians on file with the Arkansas Medical Society.

<i>Age Range</i>	<i>Number of Physicians</i>
20-30	59
30-40	413
40-50	400
50-60	251
60-70	123
over 70	171
age unknown	127

	1,544

One approach to assessing the distribution of physicians throughout the state is to observe the ratio of population to physicians in the various counties. This is obtained by dividing the population of a county by the number of physicians in it. It is recognized that this does not give an exact picture of physician coverage, as people frequently cross county lines in obtaining medical service. At the same time, this ratio does give an indication as to the areas where additional doctors may well be needed. The following tabulation

* Ozark, Arkansas. Chairman of the Society's Committee on Medical Education.

presents a series of ranges of the ratio and the number of counties having medical coverage within a given range. Also shown is the total population of all the counties within the range.

<i>Population-Physician Ratio</i>	<i>Number of Counties</i>	<i>Total Population of Counties</i>
Less than 1,000	7	509,000
1,000-1,500	14	269,000
1,500-2,000	19	442,000
2,000-2,500	17	335,000
2,500-3,000	9	126,000
3,000-3,500	1	6,000
3,500-4,000	4	59,000
4,000-4,500	3	38,000
No physician	1	6,000

While it is obvious from the above tabulation that certain parts of the state are in definite need of additional physicians, the distribution of those we have is such that only four towns with a population of 1,000 or more are without a doctor. One of these is two miles from a town with forty-six doctors, one two miles from a town with six doctors, one four miles from a town with five doctors, and the other fourteen miles from a town with five doctors. The counties in which these towns are located have population-physician ratios of 493, 2,158, 1,799, and 1,582 respectively.

There are thirty-two towns with a population between 500 and 1,000 that do not have a physician. The distance of these towns from the nearest doctor is tabulated below.

<i>Miles from Doctor</i>	<i>Number of Towns (500-1,000)</i>
1-5	3
6-10	11
11-15	10
16-20	5
21-25	2
30	1
	—
	32

The population-physician ratios of the counties in which these thirty-two towns without a doctor are located are tabulated below.

<i>Population-Physician Ratio of County</i>	<i>Number of Towns Without a Doctor (500-1,000)</i>
Less than 1,000	6
1,000-1,500	9
1,500-2,000	4
2,000-2,500	5
2,500-3,000	5

3,000-3,500	0
3,500-4,000	0
4,000-4,500	1
No Physician	2

Consideration was given to the amount of physician coverage described above which falls on the one hundred seventy-one physicians over the age of seventy. The distribution of these people is such that one is the only physician in a town of 1,210 and another the only physician in a town of 905. Five towns with populations between 500 and 900 have as their only physician an individual over the age of seventy, and one town in this range has two. Sixteen physicians over age 70 are located in towns under 500 population

with no other doctor in the town. The remaining one hundred forty-eight doctors over age 70 are located in towns in which younger physicians also are located, and eighty-two of these are in towns of 5,000 population or larger.

One hundred twenty-three physicians are on record with the Arkansas Medical Society as being between sixty and seventy years of age. Of these, six are located in towns where there is no younger physician. The largest of these towns is 1,700, and the other five have a population of less than a thousand. Eighty-two of the one hundred twenty-three are located in towns of over 5,000 population.

WHAT'S NEW?



COMMUNITY SERVICES FOR EXCEPTIONAL CHILDREN IN ARKANSAS

Patricia O'Connor, M.D.*

THE EXCEPTIONAL CHILD is one who differs from the average in one or more characteristics to such a degree as to need specialized, long-term medical and/or educational services. A child may be exceptional in that he is orthopedically handicapped, mentally retarded, hearing or vision handicapped, or emotionally disturbed. Handicaps are often multiple, and the presence of one handicap should alert the physician to the possibility of others. The gifted child is also exceptional but will not be included in this discussion of exceptional children.

In 1962 the Special Education Section of the Department of Education conducted a survey of handicapped and suspected handicapped children in 15 school districts in Arkansas. By extrapolation of the data they obtained to include the whole State, it is estimated that 45,000 children of school age in Arkansas have, or are suspected of having, a handicapping condition. This includes all handicaps, not just mental retardation. It includes children with minor handicaps which would not need specialized service as well as normal children suspected of having a problem. Therefore, 45,000 is undoubtedly an overestimate but is suggestive of the size of the problem.

When dealing with an exceptional child, the physician, teacher, or other professional worker will find that one worker will have to depend on, and work with, others so that the child can receive maximum benefits from medical care, from education and training, and from the various thera-

pies that may be involved. To use an overworked phrase, the team approach is most important when caring for the exceptional child. The logical leader of this team is the pediatrician or the physician responsible for the child's general medical care. If he does not take this lead, if he is not informed, other workers will take this responsibility, or else the child's care can easily become fragmented, incomplete, and lacking in realistic, well defined goals.

Part of the information needed in planning the total program for an exceptional child is a knowledge of the types of training and education facilities available in the State and in the child's community. This includes residential and day schools. Residential placement may be necessary because (1) a relatively small number of affected children, needing a highly specialized program, can be taken care of most economically in a central location, and (2) the physical, emotional, and social problems may be such that the child cannot be cared for in his own home or a foster home, and residential placement is required. Community facilities are generally less expensive and, most importantly, allow the child to maintain close family and community ties.

Facilities for the Blind and Deaf in Arkansas

Children with severe hearing and vision problems are cared for at the Arkansas School for the Blind, Arkansas School for the Deaf, and Arkansas School for the Negro Blind and Deaf. A program of provision and distribution of large print books to children in the regular schools who need this

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service has been developed cooperatively by the School for the Blind and the State Special Education Section. The Crippled Children's Division of the State Welfare Department has begun a program of providing hearing aids to limited numbers of hard-of-hearing children of normal intelligence whose parents are unable to provide prescribed aids. These children must be found by an audiologist to be able to profit from the use of a hearing aid.

Facilities for the Physically Handicapped

Physically handicapped children are, and should be, taught in the regular classroom if they are of normal intelligence, and if the school's physical plant is suitable. Some of the special education programs in public and private schools serve physically handicapped children of normal intelligence, as well as educable level retarded children. Often a child who is physically handicapped is also mentally retarded. Rather extensive programs serving both types of exceptional children are in operation in Little Rock, Pine Bluff, Fort Smith, and Texarkana. Sometimes the retarded and physically handicapped are in the same class. In these cases the teacher has to make an extra effort to tutor the physically handicapped child and keep him challenged intellectually. If there is no special class, and if the physically handicapped child cannot attend a regular class, home instruction can be provided in a few school districts. In order to provide an education for those physically handicapped children of normal intelligence who could not otherwise be educated, the 1961 Legislature appropriated funds to the Special Education Section for the 1961-1963 biennium for residential education of these children. Through this the Children's Convalescent Center at Jacksonville has been providing 10 months of residential schooling to about 24 such children. The goal is for the child to make one grade per year academic progress. This supplemented the teaching services that the Center provides to those children hospitalized there by the Crippled Children's Division for three months or longer periods of training and observation.

Facilities for the Multiple Handicapped

Children with multiple handicaps may be cared for in a facility designed for only one of the conditions affecting the child. If the other handicaps are severe, this presents problems. Difficulty arises in meeting not only the needs of the

child concerned, but also the needs of the other children in the group. The Deaf School and Blind School have cared for children with other handicaps, although their programs are designed for children with only the special sensory handicap. In addition to a physical handicap, a child may have an emotional problem needing special attention. All of the classes, schools, and centers dealing with exceptional children must be prepared to handle at least minor emotional disturbances. They generally are not able to handle serious emotional disturbances, although in some cases it may be difficult to determine if a child is emotionally disturbed or mentally retarded or a combination of these.

Facilities for the Mentally Retarded

The largest group of exceptional children are the mentally retarded. There are various estimates of the incidence of retardation. Surveys on retardation indicate that the incidence of recognized retardation is highest during the school age years, that the rate for males is higher than for females, and that the rate for non-whites is higher than for whites.

One estimate suggests that in Arkansas there are at least 8,000 educable mentally retarded, 3,000 trainable mentally retarded, and 1,000 totally dependent. This is close to figures obtained by estimating that 2% of the school age population are mentally retarded, and of this 1.5% are educable, .4% are trainable, and .1% are totally dependent. In 1962 there were approximately 450,000 school age children in Arkansas. Assuming the above percentages apply, there would be 6,750 educable, 1,800 trainable, and 450 totally dependent school age children. Whatever the estimate, there are many retarded children in Arkansas.

Residential Facilities for the Retarded

Most retarded children are in the community. Residential placement in Arkansas is limited. In June, 1962, the Arkansas Children's Colony had 320 students—128 educable and 192 trainable. Since that time the Colony has expanded and is now serving some total care children. When the buildings now under construction are finished, the Colony will have a capacity of 528 children. Fullerton Cottage at the State Hospital has provided residential care for retarded children. To some extent the Blind and Deaf Schools and the four State training schools for problem youths of both races have had retarded children

in attendance. There are probably between 500 and 800 retarded children in some type of residential placement in the State. In addition, the State Hospital cares for about 1,100 adult retarded.

Community Facilities for the Retarded

For the most part retarded children are cared for at home and in the community. There are varied community programs, public and private, providing education and training for some retarded children. In some cases children of normal intelligence with other handicaps are cared for in the same program as retarded children. Generally these are good programs but they are not extensive enough to serve all the children who could benefit from them.

Public School Services for the Retarded and Physically Handicapped

Special Education Classes:

Act 412 of the 1947 Legislature authorized school districts to receive supplementary assistance for physically handicapped children when special classes were provided for them. This act was amended in 1949 to include educable level mentally retarded children. The supplement is \$100 per year for the educable retarded and \$200 per year for the physically handicapped child. A maximum of 15 pupils per teacher is recommended for a special class. For the 1961-1962 school year there were 79 special classes in public schools and 11 classes in four treatment institutions (Jacksonville Convalescent Center, Arkansas Children's Hospital, the State Tuberculosis Sanatorium, and McRae Sanatorium). The treatment institution programs are for children with normal intelligence primarily, but serve to some extent the retarded. These classes served about 1,000 retarded children. The program is administered by the Special Education Section of the State Department of Education.

Special classes for the educable level retarded are for children in the IQ range of roughly 50 to 75. These children fall below the average in mental development to the point where they cannot keep up with a regular class, and they require a special approach. The higher level educable child can learn basic skill subjects such as reading and arithmetic as high as the 6th grade level. In these classes attention is given to fostering good personality characteristics and work habits which often are the major factors in the child's eventual adjustment as a self-supporting citizen in the

community. When a child in special classes reaches 16 years of age, he can be referred to Vocational Rehabilitation in the State Department of Education. Vocational Rehabilitation served 105 mentally retarded clients in the 1961-1962 fiscal year and participates in sheltered workshop programs in Little Rock, Hot Springs, El Dorado, and Fort Smith. Expansion of the sheltered workshop program is planned.

One or more special classes for the educable retarded and/or physically handicapped are located in 31 school districts. The number of special education teachers in each district for the 1962-1963 school term follows the name of each district:

Amity	1	Harrisburg	1	No. Little Rock	10*
Arkadelphia	1	Helena	3	Piggott	1
Blytheville	1	Hot Springs	7	Prescott	1
Crossett	1	Jonesboro	1	Rogers	1
Cutter-Morning Star (Garland Co.)	1	Little Rock	50*	Springdale	1
El Dorado	1	Magnolia	1	Stuttgart	2
Fairview-Camden	1	Malvern	1	Texarkana	1
Fayetteville	2	Mena	1	Van Buren	2
Fort Smith	5	Morrilton	3	Warren	2
Fouke (Miller Co.)	1	Nashville	1	Wynne	1
		Newport	1		

Instruction of the Homebound:

When a child cannot attend a regular class because of a physical handicap or chronic illness, he can keep up in his school work through homebound instruction. For the 1962-1963 year homebound instruction has been provided by the following school districts: Benton, Conway, DeQueen, El Dorado, Fayetteville, Gravette, Gurdon, Jasper, Little Rock, Mena, North Little Rock, Pine Bluff, Searcy, Texarkana, Waldron, White Hall, and Watson.

Speech Therapy:

Speech therapy is indicated for many exceptional children. For the 1962-1963 school year, the following school districts have employed a speech therapist: Crossett, El Dorado, Jonesboro, Jefferson County, Pine Bluff, Yell County, Fayetteville, Hot Springs, and Stuttgart.

Speech therapy is also available in some of the private schools for exceptional children. There may be a speech therapist in a community who is not employed by either a public or private school. Usually this person would be known to the school superintendent.

*Includes 6 teachers of the homebound in Little Rock and 1 in North Little Rock.

Private Training and Education Facilities for the Retarded and Physically Handicapped

Trainable Classes:

These classes are for children with an IQ range of from approximately 25 to 50. As adults, these children will have an approximate mental age of 4 to 7½ years. This group of children is also called the "moderately retarded". The old term of imbecile is no longer used because of the connotations associated with its use. Generally these children can be taught self-care, social graces, group adjustment, and, often, a simple task that can be done under supervision. As teenagers the higher level children may be able to be placed in sheltered workshops. Good personality development is very important for these children, particularly if they stay in the community. They will always need a large measure of supervision.

The following privately operated programs are for the trainable level child. (Other programs have classes for the trainable, but also serve the educable retarded and physically handicapped. These programs are listed under "Other Private Facilities for Exceptional Children".)

Bentonville—*Benton County School for Retarded Children*, Rt. 1, Bentonville. A trainable class with a capacity of 30. For information contact Mrs. Carlin Sherman, Rt. 1, Bentonville.

Conway—*Conway Class for Handicapped Children*, sponsored by the Junior Auxiliary. A capacity of 10 children. For information contact Mrs. N. W. Haynes, P. O. Box 829, Conway.

DeQueen—*The A.R.C. School*, Sevier County Council of the Association for Retarded Children. A trainable class with a capacity of 20 pupils. For information contact Dale Jones, Rt. 3, DeQueen.

Fort Smith—*Bost School for Limited Children*, 615 N. 19th Street. A trainable school with 6 classes having an enrollment of 31 in January, 1963. For information contact Mrs. Louis Swafford, 4702 No. "M", Fort Smith.

Hot Springs—*Hot Springs Trainable Class*, a trainable class with an enrollment of 9 in January, 1963. For information contact Mrs. Norman Erick, P.O. Box 13, Hot Springs.

Jonesboro—*Cottage of Hope*, 101 Dean Street. A trainable class with a capacity of 15. For information contact Mrs. Edith Atkerson, 828 Parkview, Jonesboro.

Little Rock—*Holy Souls Exceptional School*, 5315 H. Street. A trainable class with a capacity of 12. For information contact Msgr. Francis Allen, 914 N. Harrison, or Mrs. C. Magruder, 7414 W. "F" Street, Little Rock.

Malvern—*Kiwanis School*, Oakland Street. A trainable class with a capacity of 6. For information contact Mrs. Rose Walker, Poyen, Arkansas.

North Little Rock—*Day Care Center for Colored*. A trainable class with a capacity of 12. For information contact United Cerebral Palsy of Central Arkansas, 1222 Summit, Little Rock.

Paragould—*Greene County Association for Retarded Children*, Paragould. A trainable class with a capacity of 12. For information contact Mr. Sid Lee, Box 172, Paragould.

Pine Bluff—*Tiny Tim School*, 1300 N. Magnolia. A trainable class for colored with a capacity of 18. For information contact C. N. Toney, 2105 Recker Street, Pine Bluff.

Day Care Centers:

These centers serve children who cannot be cared for in other group programs. Typically these centers serve children in the totally dependent range of retardation (IQ less than 25), children with combined severe mental and physical handicaps, and older and younger trainable level children who for various reasons cannot attend a program designed only for trainable children. The purpose of these centers is to give the child and family a chance for separate activities, to encourage habit training, and to develop happy, pleasant, personalities in the children to the maximum extent possible. Self-care is generally taught in these centers to the extent that the child can profit. The day care centers now in operation are:

Little Rock—*United Cerebral Palsy Day Care Center*, U.C.P. of Central Arkansas, 1222 Summit. The center can serve up to 25 children. For information contact Mrs. J. B. Waddington, c/o U.C.P., 1222 Summit.

Russellville—*Day Care Center for Retarded Children*—13 children enrolled in January, 1963. For information contact Mrs. Bethel Vaughn, Russellville.

Other Private Facilities For Exceptional Children:

Several of the private programs for exceptional children provide a variety of services for children with a variety of handicaps. The services provided by each of these schools are summarized below:

Benton—*Special Class for Retarded Children*, Saline County Association for Retarded Children. A class for educable and trainable level children with 14 children enrolled in February, 1963. For information contact Mrs. Preston Cooper, West Maple Street, Benton.

Little Rock—*Pre-School for the Handicapped*, Easter Seal Agency, Arkansas Association for the Crippled, 2801 Lee Street. A pre-school group for the physically handicapped. This class prepares children for admission to special education classes in the public schools. Capacity 15. The Easter Seal Agency also operates a sheltered workshop for adult handicapped. For information contact Mrs. Virginia Armistead, Easter Seal Agency, 2801 Lee Street.

Newport—*Jackson County School for Retarded Children*, Newport Air Base. In January, 1963, this school had 5 children in a trainable group, 5 in a day care program, and 8 in sheltered workshop activities. For information contact Mrs. Jesse Black, 1420 Congress Street, Newport, Arkansas.

North Little Rock—*North Hills School for Exceptional Children*, 207 Rainbow Lane. This school has a capacity of approximately 34; 22 trainable, and 12 educable. Physically handicapped retarded children are accepted. For information contact Miss Virginia Ingram, c/o North Hills Exceptional School, 207 Rainbow Lane, North Little Rock, Arkansas.

Pine Bluff—*Sunshine School*, 821 Cherry Street. This school provides special education and training for children with all types of handicaps. Physical, occupational, and speech therapy are available. For further information contact Mrs. Bess Jenkins, 821 Cherry, Pine Bluff.

Texarkana—*Temple Memorial Home*, 304 E. 5th Street. This school has a trainable class with a capacity of 13 and a class for the orthopedically handicapped with a capacity of 13. Physical therapy, occupational therapy, and speech therapy are available. For further information contact Miss Beverly Schaefer, Temple Memorial Home, Texarkana.

West Memphis—*Jones' Happy Time School*. A center for retarded children with an enrollment of 5, February, 1963. For information contact Mrs. Adda Jones, 1300 Biscayne, West Memphis, Arkansas.

In addition to those listed above, other agencies and organizations in Arkansas are concerned with exceptional children. Diagnostic and evaluation services are available from:

Arkansas Children's Colony, Conway (Retarded).

Arkansas Child Development Center, 811 North Spruce, Little Rock (Retarded).

University of Arkansas Medical Center, Pediatrics and Child Guidance Clinics.

Crippled Children's Division, State Welfare Department. Arkansas Children's Hearing and Speech Center, 801 Battery, Little Rock. (Audiologic and Speech Services)

Arkansas School for the Blind.

Arkansas School for the Deaf.

Parent's groups are often of great help to parents in keeping them aware of new developments, and in helping them work together for the good of their children. For the name of a group in their area, interested persons should write to:

Arkansas Association for Retarded Children, 1222 Summit Street, P.O. Box 2758, Little Rock, Arkansas

or

United Cerebral Palsy of Arkansas, 1222 Summit Street, P.O. Box 2758, Little Rock, Arkansas

SOURCES:

Arkansas State Department of Education, Special Education Newsletter, December, 1962.

Report of the Governor's Advisory Committee on Mental Retardation, November 9, 1962, Jake Sklar, Chairman, Little Rock.

Personal Communications.

TEACHING SEMINAR

*Department Pediatrics And Pathology
University of Arkansas Medical Center
Little Rock, Arkansas*



TREATMENT OF PULMONARY TUBERCULOSIS

Donald L. Miller, M.D.*

THE AVAILABILITY OF EFFECTIVE drugs has greatly reduced the morbidity and mortality of tuberculosis, but this disease remains a serious public health problem. One of the main problems of therapy is that many patients do not receive an adequate course of drugs.

Many patients leave sanatoria against medical advice, often with positive sputum cultures, and are lost to follow-up. Also, patients discharged with approval frequently have their planned course of therapy interrupted because out-patient care is not readily available, and some just fail to seek continued medical supervision. Insufficient drug treatment may lead to breakdown of healing lesions and is definitely a factor in development of drug-resistant organisms.¹²

The most important answer to the problem of inadequate therapy is the early establishment of a good doctor-patient relationship. The many problems of socio-economic and psychologic nature associated with such a long-term chronic illness are obvious. Good patient education and a sympathetic interested physician will go a long way toward making a cooperative patient and, except for very rare instances, a cooperative patient can be cured. Medical supervision ideally should consist of combined efforts of the patient's family physician and a consulting specialist in chest disease.

Patients are usually quick to attribute minor symptoms to drug intolerance, and too often we physicians make the same mistake. When the

commonly used anti-tuberculous drugs produce unpleasant side effects, usually the therapy need not be changed. The advantages of uninterrupted chemotherapy far outweigh minor discomforts patients may have, and practically always re-emphasis of the need for therapy by an understanding physician may prevent disruption of therapy. If symptoms then persist, temporary planned omission or reduction in dose of drug (with gradual increase in dosage to previous level) may solve the problem.

The increasing success with drug therapy has greatly diminished the need for sanatorium care as regards "fresh air, rest, and nutritious diet."^{5, 13, 18, 19, 20} In uncomplicated tuberculosis, enforced rest is not indicated and even newly diagnosed cases should be fully ambulatory unless they are toxic. The value of rest has been greatly overemphasized and is a carry-over from the days when we had little else to offer in way of therapy. This concept has led many patients to believe they are physically disabled when they may be capable of performing their usual occupations shortly after their disease has become inactive.

Tuberculosis sanatoria are properly becoming "chest hospitals" with many important functions. They provide isolation of infectious cases from their families and communities until such time as they can safely continue their treatment at home. Modern laboratory, bacteriological and x-ray facilities allow these hospitals to provide more rapid workup for differential diagnosis of chest lesions and to initiate indicated therapy. They are best equipped for care of complicated

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cases and have the advantage of combined medical and surgical management. The tuberculosis hospital is also where patient education begins along with help for patients from social service agencies and plans for rehabilitation. With rare exception, all newly diagnosed cases should have these benefits of hospitalization in their initial management period.

The three main drugs, often referred to as "first-line drugs", for initial treatment are isoniazid (INH), streptomycin (SM), and para-aminosalicylic acid (PAS). Considerable experience with these drugs has shown that they are safe and effective. Two of these should be used simultaneously, and one should always be INH. Usual therapy of uncomplicated cases should consist of isoniazid and PAS, saving streptomycin for use in case of primary treatment failure. Properly, the final choice of drugs depends on laboratory proof that the patient's tubercle bacilli are sensitive to the medications prescribed. Usually INH and PAS are started while awaiting sensitivity results. Some prefer to begin with all three drugs (SM, INH, and PAS) and continue this for the usual two to three months, wait for sensitivity information, and then discontinue streptomycin if the bacilli are not resistant to INH.

In general, INH plus PAS is more effective than INH alone. Streptomycin plus INH can be about equally as effective as INH and PAS, and either of these combinations is as effective as INH plus streptomycin.^{2,5,6} The routine use of all three drugs is not indicated as this increases greatly the percentage of toxic reactions and also increases the possibility that the organisms may develop resistance to more than one of the "first-line drugs." The use of two drugs definitely delays or prevents development of resistance to any one of the drugs. PAS not only has an antibacterial effect on tubercle bacilli, but increases the serum level of INH.⁵

INH is usually prescribed in daily doses of 4 to 5 mgm per kilogram of body weight (average adult dose 300 mgm per day), and it is quite unusual for toxicity or unpleasant side effects to develop at this dosage level. Larger INH doses are probably no more effective and lead to increased possibility of toxic reaction.^{5,6} If larger doses of INH are used, pyridoxine should also be administered, as it may help prevent the peripheral neuritis that is occasionally associated with high INH dosage. Children seem to tolerate

larger doses per kilogram of body weight and are sometimes given from 5 to 10 mgm per kilogram per day, though the usual dose should be around 5 mgm per kilogram. INH may be given in one, two, or three doses per day.

PAS is usually given in amounts of 12 grams daily, divided into three or four doses. Gastric upset may occur but may be minimized by taking the pills with meals or, if necessary, temporarily reducing the dosage. Some patients may better tolerate one of the newer (and more expensive) PAS preparations. The average daily PAS dose for children is 150 mgm per kilogram.

Duration of therapy in uncomplicated tuberculosis should be a minimum of two years, or preferably for two years after the sputum has become negative. It is important that this therapy be continuous over this period of time. Complicated cases may require more prolonged or even indefinite therapy.

INH alone is used in therapy of primary tuberculosis of children, and therapy should be continued for a minimum of one year in uncomplicated cases. This treatment has been shown to decrease significantly both pulmonary and extrapulmonary complications of primary tuberculosis.^{9,15,16} Use of INH as a single drug is also effective in situations where "chemoprophylaxis" is indicated. This would include known recent skin test converters, infants under age three with a positive skin test, and positive skin test reactors who are given corticosteroid therapy.

Newer anti-tuberculous drugs, often referred to as "second-line drugs", are available for treatment of patients infected with resistant organisms. These drugs produce a much higher incidence of severe toxic reactions than "first-line drugs" and probably should only be utilized in patients who are hospitalized. Most promising of these newer drugs are ethionamide, cycloserine, and pyrazinamide.^{1,2,4,11,14} Experience to date has shown that "second-line drugs" should also be used in combinations of two or three, as this will delay emergence of resistant organisms and produce better therapeutic results. Capreomycin is a new drug, now available only for investigational purposes, that may prove quite successful.¹

Newer drugs for tuberculosis therapy are difficult to evaluate for many reasons. They are usually required only in complicated cases, and there are many drug combinations to be tried. Evaluation is further hampered because these drugs are

often not continued for an adequate period of time. Patients requiring retreatment must be re-hospitalized and are likely to be uncooperative. Many of this group may have developed their drug resistant infections due to lack of cooperation in the initial treatment period, and dealing with patients of this type requires the utmost in understanding and tolerance by the physician.

The "second-line drugs" are quite helpful when combined with surgical resection of localized lesions which harbor resistant organisms. Surgery also may be indicated in persistent cavitory disease with or without the association of a positive sputum.^{7,8} The obvious advantage of selected surgical resection is that it removes a source of possible further reactivation. Attitudes toward surgery in tuberculosis are now more conservative, and the correlation of good medical management with expert surgical consultation is mandatory.

SUMMARY:

Results of present-day therapy of pulmonary tuberculosis could be vastly improved with more adequate supervision of patients in the post-hospitalization period. The relationship of successful management to a good doctor-patient relationship is stressed.

The present concepts of drug and surgical therapy are briefly discussed.

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ELECTROCARDIOGRAM

OF THE MONTH

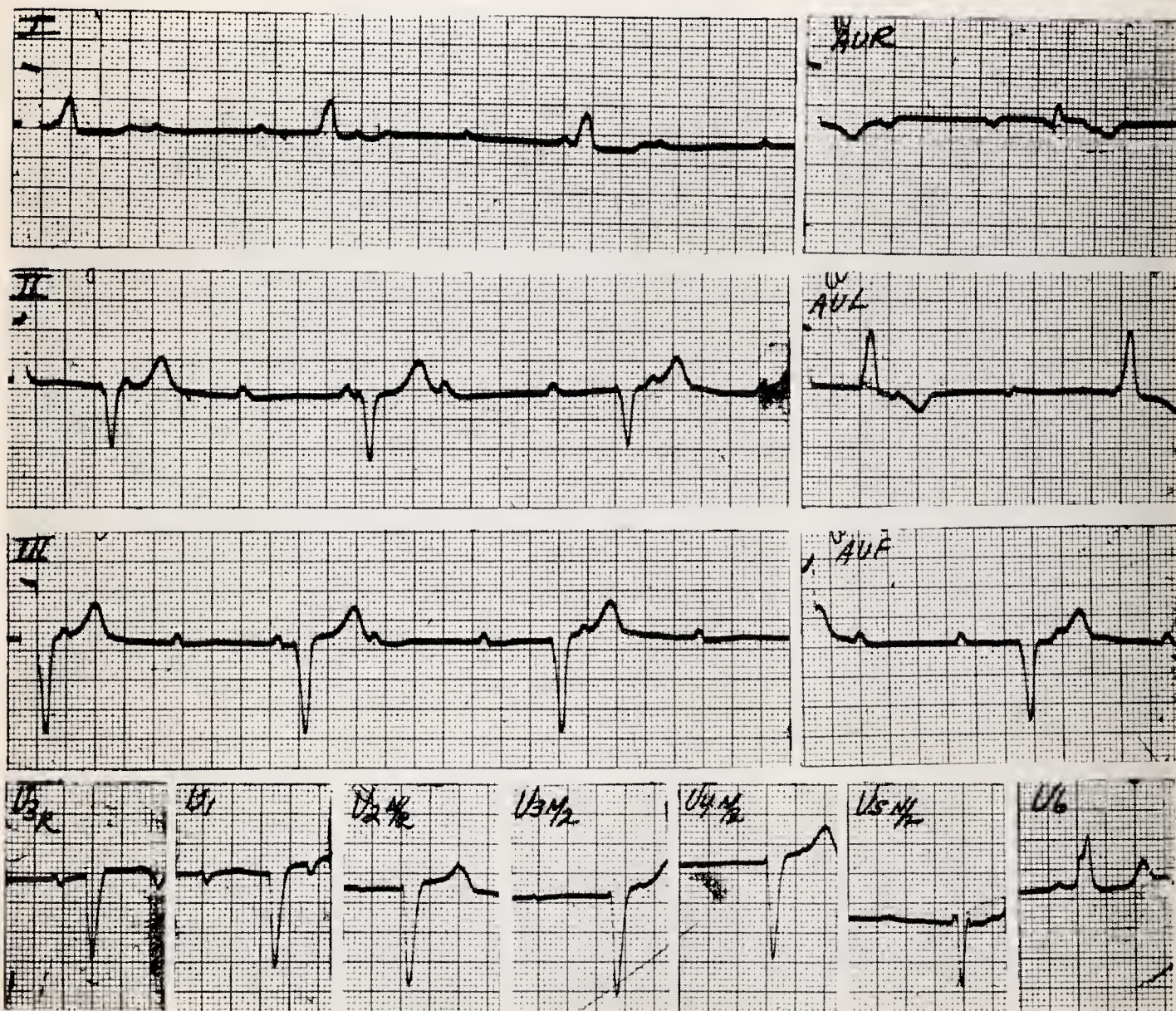
WHAT IS YOUR INTERPRETATION?

AGE: 70 SEX: M BUILD: SLENDER BLOOD PRESSURE: Not Recorded

MEDICATION: None

HISTORY: 2 Mo. history of epigastric pain.

ANSWER ON PAGE 495



The Department of Medicine, University of Arkansas Medical Center

*James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 495



Case # 6

12-23-62

2 year old white female

History: At the age of one month the patient developed a severe skin rash resembling infantile eczema. Six months prior to admission she developed polydipsia and polyuria. Physical findings at the time of admission included a generalized skin rash, exophthalmus, and irregular nodules over the skull.



THE PROGRESS OF FLUORIDATION IN ARKANSAS

Lawrence D. Furlong, D.D.S.

DESPITE THE FACT THAT INTEREST in the fluoridation of communal water supplies has slowed somewhat throughout the nation, the State of Arkansas has had steady and optimistic progress. Arkansas, with a population of only 1,720,000, and areas of sparse habitation, has since 1955 nearly doubled its count of communities now enjoying fluoridated water supplies. It is interesting to note that of the 432,114 individuals now served by fluoridated waters, the majority are in the small cities and towns. Little Rock and North Little Rock are the most populous cities of the 51 communities now served. Larger cities such as Pine Bluff, Hot Springs, Fort Smith, Texarkana, and El Dorado have yet to move toward this protective measure against dental caries. If and when these areas join forces with the smaller communities, Arkansas will have nearly blanketed its population with fluoridation from a communal water supply.

To the slightly less than half of the population which comprise the rural areas, the approach has been through topical application or supplemental intake of the fluoride ion. It is heartening to note that physicians and dentists have begun to attack the dental caries rate in children through these measures. Post fluoridation surveys show a reduction of 27% to 65% in the caries rate in various specific age groups. These percentages are comparable to the nation-wide data already published. The success of the progress of fluoridation in Arkansas is due to a concerted effort of the medical and dental professions, the total support of all of the state and local health agencies, the co-operative interest of organizations, groups, and individuals within the communities. It is hoped that within the next decade, through this continuous interest and effort, Arkansas will have no more wells to conquer.

FLUORIDATED PUBLIC WATER SUPPLIES
BUREAU OF DENTAL HEALTH
ARKANSAS STATE BOARD OF HEALTH

City	Population (1960)	Began	City	Population (1960)	Began
Little Rock	105,737	4-51	Waldo	1,715	
N. Little Rock	57,211	4-51	BLENDED WATER		
Cammack Village	1,351	4-51	(Natural Fluoride)		
Alexander	177	8-62	Bentonville	3,603	3-55
Sylvan Hills	1,000	7-62	Mountain Home	2,093	3-55
Mabelvale	500	8-62	Wynne	4,884	3-55
McRae T.B. San.	500	6-59	Forrest City	9,805	3-55
Sweet Home	500	9-62	Clarksville	3,865	6-54
Sherwood	1,228	9-62	Lamar	514	4-61
Gravel Ridge	400	11-62	Paragould	9,906	2-56
Jonesboro	21,203	10-51	Batesville	6,109	1-57
Walnut Ridge	3,508	1-52	Crossett	5,353	11-58
Springdale	10,054	11-52	Benton	10,330	2-59
Lewisville	1,363	1-53	Malvern	9,518	4-59
Arkadelphia	8,041	5-53	Heber Springs	2,281	1-59
Camden	15,686	7-53	Star City	1,572	2-60
			Morrilton	6,005	2-60

LAWRENCE D. FURLONG, D.D.S.

Searcy	7,231	12-53	Russellville	8,917	2-60
Bald Knob	1,667	12-53	Dumas	3,530	9-60
Judsonia	962	7-54	Jacksonville	14,488	6-61
Harrison	6,552	5-53	Madison	750	12-61
Newport	6,962	7-54	McCrory	1,053	12-61
West Helena	8,301	9-54	West Memphis	19,374	4-62
Marianna	5,105	10-54	DeWitt	3,019	6-62
Helena	11,445	11-54	Trumann	4,511	6-62
Hope BLENDED WATER	8,380		Warren	6,752	10-62
(Natural Fluoride)			Eudora	3,598	10-62
Prescott BLENDED WATER	3,503				
(Natural Fluoride)					
			TOTAL	432,114	

*Corning

**Mena, Conway, Carlisle

*Equipment installed—program not started.

**Approved by Council and awaiting installation of equipment.

***Four (4) other communities are considering programs for the fluoridation of their community water.



GUEST

E D I T O R I A L

HOSPITAL THERAPY AUDIT

R. B. Robins, M.D.

Camden, Arkansas

THE HOSPITAL STAFF IS BURDENED already with many activities such as the tissue audit, the medical audit, the obstetrical audit, etc., but there is an area in the province of the medical audit that probably needs more attention. I refer to the use of unnecessary medications which amounts to a sizeable item in the patient's hospital bill. Unfortunately the public has not been made aware of the tremendous effort being made by the medical profession voluntarily to safeguard the patient's welfare in our hospitals.

There is an area at present where we might make more of an effort to curb unnecessary medications, particularly in the usage of antibiotics. In a recent survey it was found that one-third (30%) of all patients admitted to a group hospitals received some antibiotic drug.

Antibiotics are too often used empirically. It

has been found in a survey that 46% of the use of antibiotics in hospitals was for prophylactic purposes. This is an expensive procedure.

Antibiograms (sensitivity tests) are being used more frequently to determine the effectiveness of antibiotics against bacterial infection. This is a trend that is to be commended and in keeping with modern medical scientific practice.

Medical staffs of hospitals through their medical audit committees could evaluate the use of drugs, especially antibiotics determining the number of patients receiving them, the conditions for which they were given, the specific drugs used and tests employed to determine their effectiveness. Then the staff can establish and apply reasonable criteria for the use of drugs in each disease. This would mean much to the patient's welfare and also reduce his hospital bill.

MEDICINE IN THE



Public Health Service Announces Research Grants for February

The public Health Service announced the award of 1,411 research grants and 297 fellowships totaling \$35,551,052 during February 1963.

Of the total, \$12,973,375 was allocated to support 654 new research grants, fellowships, and research career awards. The remaining \$22,577,677 was for the continuation of 944 previously approved research grants totaling \$21,674,131 and 110 fellowships totaling \$903,546.

The new research grants are made to 220 institutions in 45 states, the District of Columbia, and 19 foreign countries.

Association of American Medical Colleges Announce Fellowships

Thirty-one U. S. medical students have been awarded foreign fellowships by the Association of American Medical Colleges which will enable them to obtain supervised medical experience in underdeveloped countries. These fellowships are made possible by a grant from Smith, Kline & French Laboratories.

Among this years winning students is Norton A. Pope, Camden, Arkansas, junior in the University of Arkansas School of Medicine who will go to Nigeria.

The primary objective of the fellowships is to provide students an opportunity to live and work in relatively primitive cultures which present challenging medical and social problems.

The Month in Washington

Washington, D.C.—The American Medical Association urged changes in the federal income tax law that would increase allowable deductions for medical expenses of older persons.

Percy E. Hopkins, M.D., Chicago, Chairman of the AMA Board of Trustees, and Francis C. Coleman, M.D., Des Moines, Iowa, Chairman of the AMA Council on Legislative Activities, outlined the Association's position before the House Ways and Means Committee.

Most of the amendments proposed by the AMA involve changes in the Internal Revenue Code affecting those 65 and over and persons contributing to their support. These changes include:

—Permission for a taxpayer to deduct, without regard to the amount of support contributed, any medical expense paid for an aged dependent.

—Reduction of the income tax liability of lower income persons among the aged who have large medical expenses.

—Permission for aged taxpayers to receive full tax benefit for medical expenses by use of the carry-forward and carry-back method, just as businesses are presently permitted to offset losses in one year against profits in another year.

—Removal of the one per cent floor on drugs and medicines for taxpayers 65 and older.

The AMA recommended the tax law changes to the House committee shortly after President Kennedy had sent to Congress a special message asking again for congressional approval of his plan that would put limited health care of the aged under social security.

The American Medical Association reiterated its determined opposition to such legislation.

The Administration's new health care plan generally was similar to the King-Anderson bill which the Senate rejected last year. The major change would extend the health coverage to the 2.5 million older persons not covered by Social Security.

A variable hospitalization benefit program would be available to all aged social security beneficiaries with costs paid from funds provided by an increase in social security taxes. Coverage for those not participating in social security programs would be paid from general tax revenues.

Beneficiaries would have the option of selecting from three coverage plans—45 days of hospitalization with no deductible; 90 days with a maximum \$90 deductible; or 180 days with the insured paying a deductible equal to 2- 1/2 days of average hospital costs.

Home nursing facilities, out-patient diagnostic

services and up to 240 home health-care visits a year by community visiting nurses and physical therapists also would be provided.

Administration officials estimated the cost would be \$7 billion for the first five years. Insurance officials predicted the cost would be substantially higher.

Under the proposal, Social Security taxes for both employers and employees, would be increased one-quarter of one per cent. The Social Security tax for the self-employed would be hiked two-fifths of one per cent.

President Kennedy also requested that the annual earnings base from which Social Security taxes are collected be raised to \$5,200 from the present \$4,800. The plan would start Jan. 1, 1965, and require an extra \$27.50 contribution yearly from both the employee and employer where the employee makes \$5,200 or more. Maximum added cost to the self-employed would be \$42.40 a year.

George M. Fister, M.D., President of the American Medical Association, said the Administration's new plan "proposes a government-controlled program which would force increased taxes on wage earners and employers to buy limited hospitalization, nursing home and nursing care for millions of people over 65 who are financially able to take care of themselves."

"The use of tax funds to provide benefits to an entire population group regardless of need, the wealthy and well-to-do included, is just as unwise and economically unsound today as it was last year and the year before that," Dr. Fister said.

"The American Medical Association believes in helping those who need help, using tax funds where they may be required. We believe citizens of whatever age who are able to take care of themselves should not become a burden on the taxpayers. We believe the vast majority of Americans share our view."

* * *

The American Medical Association endorsed the Kennedy Administration's mental health and mental retardation program.

Testifying before the Senate Committee on Labor and Public Welfare, Dr. Leo H. Bartheimer, former chairman of the AMA's Council on Mental Health and medical director of Seton Psychiatric Institute, Baltimore, said:

"We believe these measures should be implemented in such a way as to guarantee every American the very best in medical care and treatment, and we stand ready to help achieve this standard.

There is little doubt that these bills are of the utmost importance in our common goal of improving the nation's mental health profile."

The AMA particularly supported the basic approach to the Administration bills, namely that the mental health program should concentrate on development of community facilities for care of patients at a local level.

"The American Medical Association heartily approved of the concern shown by the President of the United States and by this Committee over what we consider to be America's most pressing and complex health problem," Dr. Charles L. Hudson, Cleveland, O., a member of the AMA Board of Trustees said.

All witnesses, representing other health organizations and state governments, also supported the legislation. Some, including the AMA recommended minor changes.

Dr. Brown Addressed Spa Rotary

Dr. Willis E. Brown, professor and head of the Obstetrics and Gynecology Department at the University of Arkansas, addressed the Rotary club recently at the Arlington Hotel, Hot Springs. His subject was "Your Medical School."

Dr. Brown, who received his training at the University of Michigan, was with the department of Obstetrics and Gynecology at the University of Iowa prior to coming to Arkansas to accept his present position in 1949. He is much in demand over the country as a speaker on the subject of Obstetrics and Gynecology.

New Medical Center to Be Constructed in Pine Bluff

Plans for the construction of a \$300,000 medical center across the street from Jefferson Hospital were announced recently by a group of Pine Bluff physicians.

The center, which will be called Jefferson Medical Center, Inc., will provide office space, ultimately, for 12 physicians.

A total of 11 doctors, headed by Dr. E. L. Hutchison as president, formed the corporation. In addition to the 12 units, the center will include a pharmacy, which will be leased to an independent operator.

Dr. Dusenberry Succeeds in Isolating a Chemical From Ergot

Dr. James E. Dusenberry, associate professor in pharmacognosy at the University Medical Cen-

ter, has succeeded in isolating a chemical from ergot which is valuable in the treatment of mental illness. He recently received a \$15,000 grant from the National Institutes of Health to continue his research on the ergot, a fungus found on Dallis grass in Arkansas. He started the study in 1959 under a \$31,000 grant to study the toxic principles produced by the parasite.

It was during this research that he discovered certain strains of the fungus contain lysergic acid amide. Lysergic acid is valuable as an agent in certain drugs administered to psychiatric patients and has become an important tool in research on mental illness.

"This is the first time this particular chemical has been found in the fungal body of any ergot, although certain elements from ergot of other sources have been used in obstetrics and the treatment of migraine headaches for many years," and Dr. Dusenberry.

The additional grant will permit further investigation of the lysergic acid amide in the Dallis grass fungus as well as isolation of other strains of ergot.

Dr. Dusenberry is conducting his research in collaboration with other scientists in the College of Pharmacy at the University of Washington, who are studying the properties of ergot found on grasses in Australia.

Dr. Marcus Jordin, a University of Arkansas Professor of pharmacology, is working with Dr. Dusenberry on the toxicity studies. Much of the ergot in this study was obtained through the co-operation of Lewis Barefield, Arkansas State Plant Board.

Preview of Trends in Financing of Medical Education

A comprehensive study of trends in financing medical education is now in preparation by the Division of Operational Studies. The complete report will be published at a later date and will discuss all aspects of the multi-faceted subject including funds for basic operations, sponsored research, and federal funds for research training grants. The present Datagram is a "preview" of information pertaining to the sources of funds for basic operations.

Figures 1 and 2 cover the years from 1940-1960 and speak for themselves concerning the trends in the sources of medical school income over the years for basic operations. These trends are best expressed in terms of expenditures by sources of income rather than in terms of actual income. This is because in a given year a school may or may not spend all of its income from a given source or, due to accumulations from previous years, it may spend more. If the analysis is made

ANSWER—WHAT IS YOUR DIAGNOSIS?

Case # 6

Diagnosis: Hand-Schuller-Christian disease.

X-Ray Features: There are multiple lytic areas of destruction throughout the skull. The lesions involve both the inner and outer tables and are sharply outlined without sclerotic borders.

TRACING # 225:

AGE: 70 SEX: M BUILD: SLENDER

BLOOD PRESSURE: NOT RECORDED

MEDICATION: None

HISTORY: 2 Mo. History of epigastric pain.

ANSWER—Electrocardiogram of the Month

RATE: A. 80

V. 30 Approx.

RHYTHM: COMPLETE A-V BLOCK.

PR: —Sec. QRS: —Sec. QT: —Sec.

INTERPRETATION: Abnormal. Complete A-V block with idioventricular rhythm.

COMMENT: This electrocardiogram was made incident to diagnostic survey on elderly patient with no cardiac symptoms, but possibly those of peptic ulcer.

FEATURES

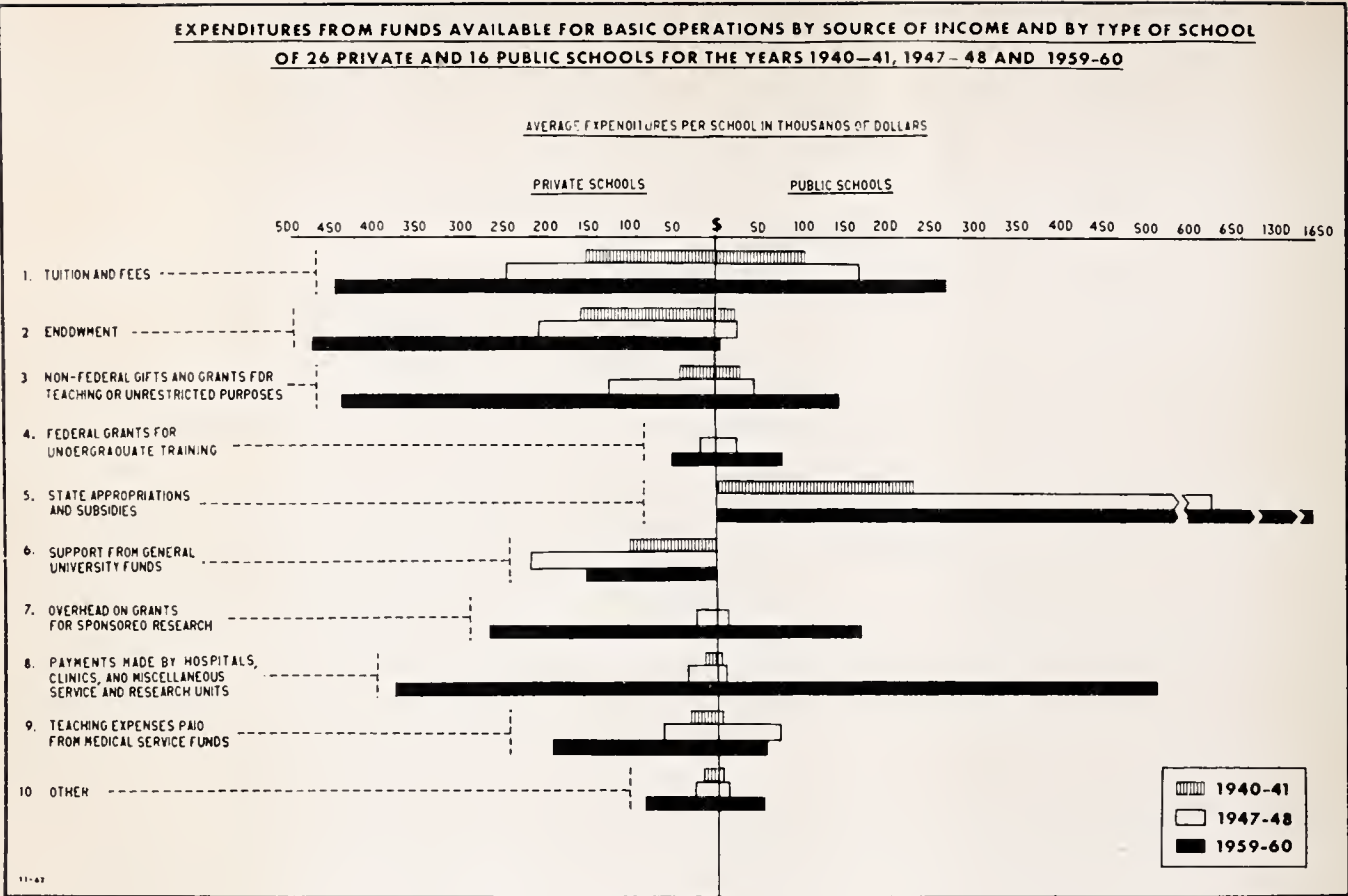


FIGURE 1

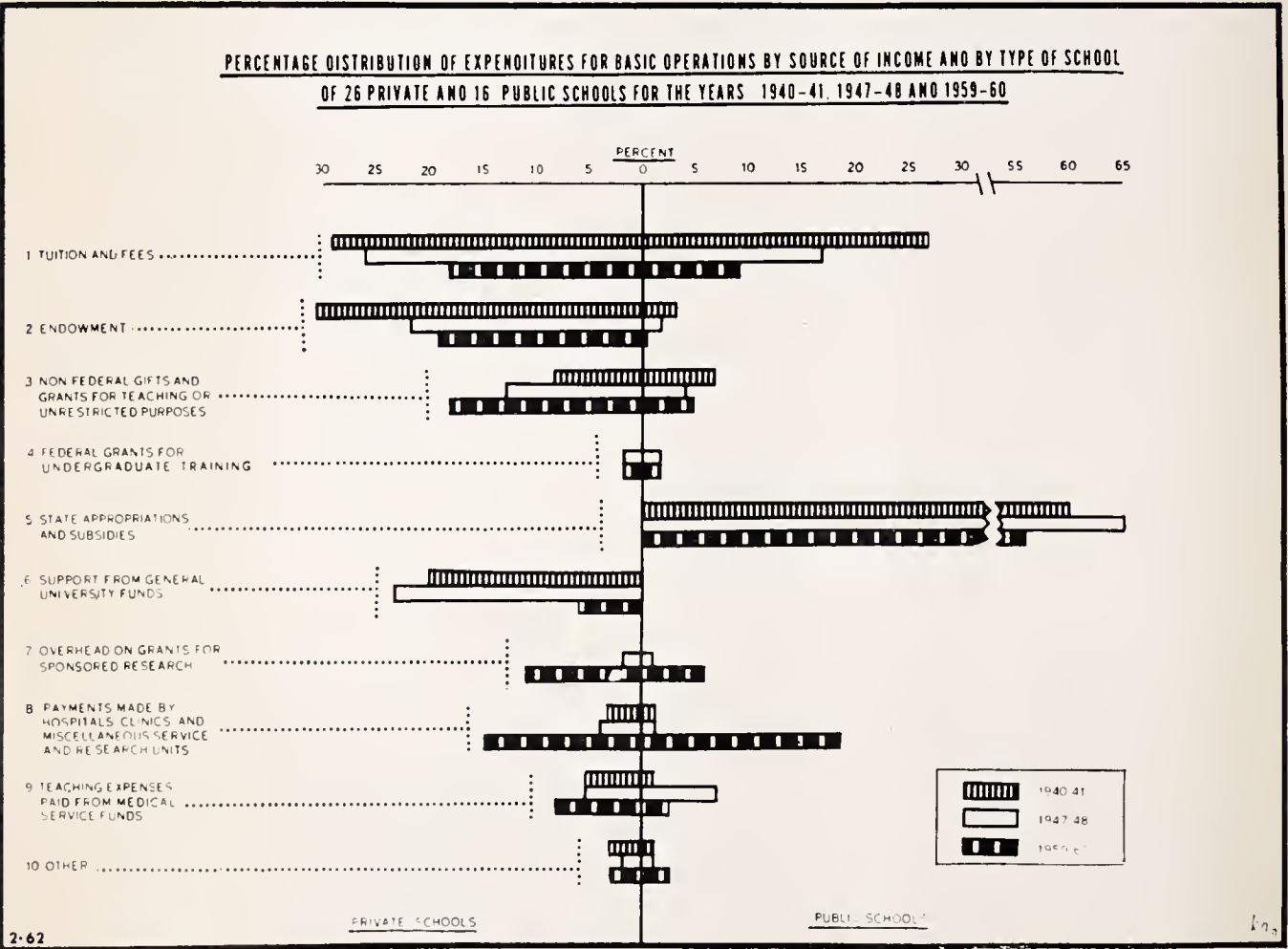


FIGURE 2

in terms of expenditures by sources of income this difficulty can be obviated. This lets each year stand as an isolated operation and with no need to account for balances or deficits. This also makes possible comparisons between schools and between selected years that are sufficiently accurate to be meaningful.

The 26 private and 16 public schools selected for the study sample were those from which could be obtained complete or reconcilable financial information for each of the years 1940-41, 1947-48, 1959-60. Private schools that received subsidies from state governments were excluded. The public schools selected were those under state sponsorship. Only medical schools sponsored by universities were included. The distribution of schools as from high to low expenditures was fairly even. In this respect, the sample can be considered fairly representative of all schools.

The ten expenditure criteria need little definition except for the following:

1) "State appropriations and subsidies," applies only to state operated schools and includes all money from state tax sources that accrue to the support of the school's basic operations. When a public school reported expenditure from general university funds, this was transferred to state appropriations and when income from tuition, earmarked endowment, or research overhead was

*Submitted by the Division of Operational Studies of AAMC. reported as a transfer from general university funds, these amounts were subtracted and transferred to their proper category of medical school expenditure. The cost of medical school plant maintenance, if borne by the university, was credited as income from state appropriations.

2) "Support from general university funds," applies only to private schools and includes all funds or the equivalent value of services that come from this source. If a university made no charge to a school for its share of administrative costs or plant maintenance, the estimated dollar value of these services was added as an expenditure from general university funds. On the other hand, if a university retained tuition, endowment, or

research overhead, compensating for this by reporting a transfer from general university funds, these amounts were subtracted from general funds and transferred to their proper category of medical school expenditure.

Figure 1 shows the average actual expenditures from funds available for basic operations from each source of income for each of 26 private and 16 public schools for selected years from 1940-1960. No adjustment has been made for the changing purchasing power of the dollar.

Figure 2 shows the changes over the years in the proportion of funds available for basic operations as determined from average expenditures by source of income and by type of school. It should be noted that these percentages will be the same irrespective of whether adjustment is made for the changing purchasing power of the dollar.



AMA 112th Annual Meeting in Atlantic City

The American Medical Association will hold its 112th annual meeting June 16-20 at Atlantic City. David B. Allman, M.D. who practiced surgery in Atlantic City for 35 years and is a past president of the AMA (1957-58), is honorary chairman of arrangements. The local chairman is Charles Hyman, M.D.

The Traymore Hotel and the new Colony Motel will be joint headquarters for the meeting, and the Woman's Auxiliary headquarters will be the Chalfonte-Haddon Hall Hotel.



PERSONAL AND NEWS ITEMS

Dr. Kenneth R. Duzen, El Dorado, Named
Diplomate by American Board of Pathology

Dr. Kenneth R. Duzen of El Dorado has been named a Diplomate of the American Board of Pathology.

This certification is given after a pathologist has met the highest standards of the medical specialty of pathology, with a minimum of 4 years of training and experience after getting his M.D. degree.

Dr. Hickman Heads Lawrence County
Medical Society

Dr. James H. Hickman was elected president of the Lawrence County Medical Society. Other officers elected were Dr. J. B. Elders, vice president, and Dr. Ralph Joseph, secretary-treasurer.

AMA President-Elect Speaks at Camden

Dr. Edward Annis of Miami, Fla., president-elect of the American Medical Association addressed the annual banquet of the Camden Chamber of Commerce recently.

Dr. Annis is the association's spokesman in the

fight against President Kennedy's medicare legislation.

Simple Words Explain Magnitude of
National Debt

In preparation for increasing national debt, every good citizen ought to know the following numeration nomenclature:

SIZE	NAME	NO. OF ZEROS
1,000 thousands	Million	6
1,000 millions	Billion	9
1,000 billions	Trillion	12
1,000 trillions	Quadrillion	15
1,000 quadrillions	Quintillion	18
1,000 quintillions	Sextillion	21
1,000 sextillions	Septillion	24
1,000 septillions	Octillion	27
1,000 octillions	Nonillion	30
1,000 nonillions	Decillion	33
1,000 decillions	Undecillion	36
1,000 undecillions	Duodecillion	39
1,000 duodecillions	Tredecillion	42
1,000 tredecillions	Quattuordecillion	45
1,000 quattuordecillions	Quindecillion	48
1,000 quindecillions	Sexdecillion	51
1,000 sexdecillions	Septendecillion	54
1,000 septendecillions	Octodecillion	57
1,000 octodecillions	Novemdecillion	60
1,000 novemdecillions	Vigintillion	63
1,037 vigintillions	Googol	100



PROCEEDINGS OF SOCIETIES

CONTRIBUTIONS TO THE
AMERICAN MEDICAL ASSOCIATION
EDUCATION AND RESEARCH
FOUNDATION

from Arkansas
January, 1963
Washington County Medical Society,
Fayetteville \$ 10.00



NEW MEMBERS

DR. CHARLES N. McKENZIE is a new member of the Pulaski County Medical Society. He was born in Hazen, Arkansas, and his pre-medical education was received from Henderson State Teachers College. He was graduated from the University of Arkansas Medical School in 1955. His office is now located at 412 Cross Street in Little Rock, Arkansas. Dr. McKenzie is an orthopedic surgeon.

Saline County Medical Society announces that DR. QUIN M. BABER has been accepted for membership. He is a native of Russellville, Arkansas. His preliminary education was received from the University of Arkansas and his M.D. degree was received from the University of Arkansas Medical School in 1957. Dr. Baber's specialty is general surgery. His office is located at 212 West Seviere in Benton, Arkansas.

A new member of Pulaski County Medical Society is DR. W. PAUL REAGAN. A native of Little Rock, his preliminary education was received from Yale University in New Haven, Conn. His M.D. degree was received from Johns Hopkins University, Baltimore, Maryland, in 1955. His office is located in the State Health Building in Little Rock. Dr. Reagan's specialty is internal medicine.

Pulaski County Medical Society announces that DR. JAMES M. SLOAN has been added to its roster of members. Born in Jonesboro, Arkansas, his pre-medical education was received from Vanderbilt University. In 1955, he received his M.D. degree from the University of Arkansas Medical School. Dr. Sloan's specialty is obstetrics-gynecology and his office is located at 5322 West Markham in Little Rock, Arkansas.

DR. W. DUANE JONES has been added to the roster of members of the Logan County Medical Society. Born at Indianapolis, Indiana, he received his preliminary education from Earlham College in Richmond, Indiana. His M.D. degree was received from the Indiana University School of Medicine in 1942. Dr. Jones is now medical director of the Arkansas Tuberculosis Sanatorium in State Sanatorium, Arkansas.

DR. BENJAMIN W. DROMPP is a new member of Pulaski County Medical Society. He is a native of Logansport, Indiana, and he received his pre-medical education from Wayne State University. His M.D. degree was received from Wayne State University in 1943. Dr. Drompp practiced four years in Detroit, Michigan. His office is now at 4301 West Markham in Little Rock. Orthopedics is his specialty.

Pulaski County Medical Society announces that DR. BILL G. FLOYD has been added to its roster of members. He is a native of Little Rock and he received his pre-medical education at Little Rock Junior College and Hendrix College. In 1956, he received his M.D. degree from the University of Arkansas. Dr. Floyd's office is located at 612 Medical Arts Building, Little Rock. His specialty is obstetrics-gynecology.

White County Medical Society announces that DR. WILLIAM J. MATTOX has been accepted for membership. He was born in Oklahoma City, Oklahoma, and received his preliminary education from Harding College in Searcy, Arkansas. His M.D. degree was obtained from the University of Arkansas Medical School in 1959. He practiced in Galveston, Texas, from 1960 until 1961. Dr. Mattox's office is at 1801 West Arch in Searcy, Arkansas. He is a general practitioner.

A new member of Pulaski County Medical Society is DR. ORIE L. FORBIS, JR. A native of Encinal, Texas, his pre-medical education was received from the University of Texas. He graduated from the University of Texas Medical School in 1953. Dr. Forbis' office is at 4301 West Markham, Little Rock. His specialty is pediatrics and psychiatry.

DR. HARRY AUSTIN GRIMES has been accepted for membership in the Pulaski County Medical Society. Born in Memphis, Tennessee,

he received his preliminary education from the University of Arkansas. His M.D. degree was received from the University of Arkansas Medical School in 1955. Dr. Grimes is an orthopedic surgeon with his office at 5324 West Markham, Little Rock, Arkansas.

Arkansas County Medical Society announces that DR. PAUL R. LANIER has been added to its roster of members. Born at Memphis, Tennessee, his pre-medical education was received from the University of Arkansas. In 1959, his M.D. degree was received from the University of Arkansas School of Medicine. He practiced at the U. S. Public Health Service Indian Hospital in Parker, Arizona from 1960 until 1962. Dr. Lanier is a general practitioner with his office located at 201 Livermore Street, Hazen, Arkansas.

DR. GENE D. RING is a new member of the Pope-Yell County Medical Society. A native of Cleveland, Arkansas, his preliminary education was received from the University of Arkansas. His M.D. degree was received from the University of Arkansas Medical School in 1961. His office is located at 505 Union in Dardanelle, Arkansas. Dr. Ring is a general practitioner.

A new member of Lafayette County Medical Society is DR. W. R. BEATY. A native Arkansan, he attended Henderson College at Arkadelphia before entering the University of Arkansas School of Medicine. He received his M.D. degree from the University of Arkansas in 1961. Dr. Beaty has practiced in Murfreesboro, Arkansas, and now has his office in Lewisville, Arkansas. He is a general practitioner.

DR. JAMES L. DENNIS has been accepted for membership in the Pulaski County Medical Society. A native of Oklahoma City, Oklahoma, he received his pre-medical education from the University of Oklahoma. In 1940, he received his M.D., degree from the University of Oklahoma. He practiced in Merced, California, from 1946 until 1959; in Oakland, California, from 1955 until 1962. Dr. Dennis is now located in Little Rock and his office address is 4301 West Markham. His specialty is pediatrics.

DR. CHARLES H. CHALFANT is a new member of Benton County Medical Society. A native of Memphis, Tennessee, his preliminary

education was received from the University of Arkansas in Fayetteville. In 1959, he received his M.D. degree from the University of Arkansas School of Medicine. He practiced in La Tuna, Texas from 1960 until 1962. Dr. Chalfant is a general practitioner with his office located at 1149 West Walnut in Rogers, Arkansas.

Union County Medical Society announces that DR. LARKIN M. WILSON, JR. is a new member. He is a native of Jonesboro. His preliminary education was received from the University of Oklahoma and his M.D. degree was received from the University of Oklahoma School of Medicine in 1958. Dr. Wilson's specialty is internal medicine and his office is located at 430 South West Avenue in El Dorado, Arkansas.

Mississippi County Medical Society announces that DR. JESSE A. LAWRENCE has been added to its roster of members. Dr. Lawrence was born at Memphis, Tennessee, and his early education was received from Memphis State University in Memphis. In 1960, he received his M.D. degree from the University of Tennessee College of Medicine. Dr. Lawrence has his office at Adams Street in Wilson, Arkansas. He is a general practitioner.

DR. JOHN D. CLOWER is a new member of Benton County Medical Society. He is a native of Monticello, Arkansas. His early education was received from the University of Arkansas and his M.D. degree was received from the University of Arkansas School of Medicine in 1959. Dr. Clower practiced in Mescalero, New Mexico from 1960 until 1962. He is a general practitioner and his office is located at 1149 West Walnut in Rogers.



BOOK REVIEWS

HYPERTENSION RECENT ADVANCES, The Second Hahnemann Symposium On Hypertensive Disease, Edited by Albert N. Brest, M.D., Assistant Professor of Medicine and Head, Section of Hypertension and Renology, Hahnemann Medical College and Hospital, Philadelphia, Pa. and John H. Moyer, M.D., Professor and Chairman of The Department of Medicine, Hahnemann Medical College and Hospital, Philadelphia, pp. 660, illustrated, published by Lea & Febiger, Philadelphia, 1961.

This Second Hahnemann Symposium On Hypertensive Disease is an excellent book. It discusses many current features of therapy as well as the natural history of hypertension and some of the causes of hypertension. Of principal interest to the practicing internist, of course, is the recent advances in therapy. There is an excellent chapter on Treatment of Hypertensive Emergencies. The book has numerous charts and a moderate number of illustrations. Most sections have adequate references. The book itself, as the title infers, is a compilation of works of various authors; all of them are outstanding in their field. This book is heartily recommended to physicians who practice internal medicine and it will be of great interest to other practitioners who see hypertensive cases.

INTRODUCTION TO ANESTHESIA, by ROBERT D. DRIPPS, M.D., Professor and Chairman, Department of Anesthesiology, Schools of Medicine, University of Pennsylvania; Anesthetist, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania, JAMES E. ECKENHOFF, M.D., Professor of Anesthesiology, Schools of Medicine, University of Pennsylvania, Anesthetist, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania, and LEROY D. VANDAM, M.D., Clinical Professor of Anesthesia, Harvard Medical School; Director of Anesthesia, Peter Bent Brigham Hospital, Boston, Massachusetts, Second Edition, pp. 413, published by W. B. Saunders Company, Philadelphia and London, 1961.

This is a very valuable brief textbook on anesthesia. This important specialty in medicine is in a large measure responsible for many of the surgical triumphs of recent years. Formerly anesthesiology dealt only with ether anesthesia with the many techniques visible to the modern anesthesiologist. The medical student has to acquaint himself through some simple textbook with the methods now available and currently in use. This book satisfies this purpose in a very excellent fashion. The current rash of malpractice suits has caused the author to include the chapter in this text. The book is divided along conventional lines with discussions of different types of anesthesia, whether inhalation or injected. The hazards of anesthesia and some of the complications are also discussed. This book is heartily recommended to all medical students and general physicians. AK

PSYCHIATRY, By IAN GREGORY, M.D., M.A., D. Psych. M.P.H., Assistant Professor of Psychiatry, and Coordinator of Undergraduate Education in Psychiatry, University of Minnesota Medical School, pp. 577, published by W. B. Saunders Company, Philadelphia and London, 1961.

The text book of psychiatry discusses the basic principles and specific syndromes of psychiatry. The techniques of

performing psychological examinations are discussed. There are chapters on psychotherapy, drug therapy and other means of treatment. The author discusses in great length the etiology of psychological factors and the relationship to psychiatry. Roughly one-half the book is devoted to specific syndromes as schizophrenia and etc. There is a chapter on psychoneuroses and the reviewer would prefer to see this section lengthened and expanded. This book is well written and especially well organized. It is recommended as a text book of psychiatry. AK

DISTURBANCES OF HEART RATE, RHYTHM AND CONDUCTION, by ELIOT CORDAY, M.D., F.A.C.P., F.A.C.C., Assistant Clinical Professor Medicine, School of Medicine, University of California, Los Angeles; Attending Staff, Cedars of Lebanon and Mt. Sinai Hospitals, Los Angeles and DAVID W. IRVING, M.D., Clinical Assistant, School of Medicine, University of California, Los Angeles; Research Associate, Cedars of Lebanon Hospital, Los Angeles; Research Fellow, Los Angeles County Heart Association, pp. 357, published by W. B. Saunders Company, Philadelphia and London, 1961.

This text book is principally aimed at the internist and cardiologist. There is an excellent short compendium of abnormalities of the heart beat. It includes sketches and electrocardiograms in profusion. The text is well organized and well written. This book contains a most worthwhile review and compilation of diseases of the heart beat. It is recommended only for interns and especially for those who are interested in cardiology. AK

MECHANISMS OF DISEASE, by RUY PEREZ-TAMAYO, M.D., Professor and Director of the Department of Pathology of the School of Medicine, National University of Mexico, Illustrated, pp. 512, published by W. B. Saunders Company, Philadelphia and London, 1961.

Dr. Perez-Tamayo's text introduces the medical student to pathology. It is concerned with fundamental mechanisms and is not concerned with attempting to be a complete descriptive textbook of pathology. Within the limitations of its purpose, it succeeds well. The author introduces some historical background and this makes the book more interesting. Of particular interest is a section on the general pathology of tumors; however, the author discusses the causes of tumors in far too brief a fashion for a text of this sort. The section on connective tissues is exceedingly interesting and there is a discussion of the chemistry of connective tissue in a rather simple but complete fashion. This book is recommended as an introduction to pathology; it is well written and interesting but it is of very limited interest to the medical student or practicing physician as much of this material is contained in ordinary textbooks of pathology. AK

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ABBREVIATIONS—

(O) Original Articles: (SP) Special Articles:
(E) Editorial: (OB) Obituary: (R) Resolution:

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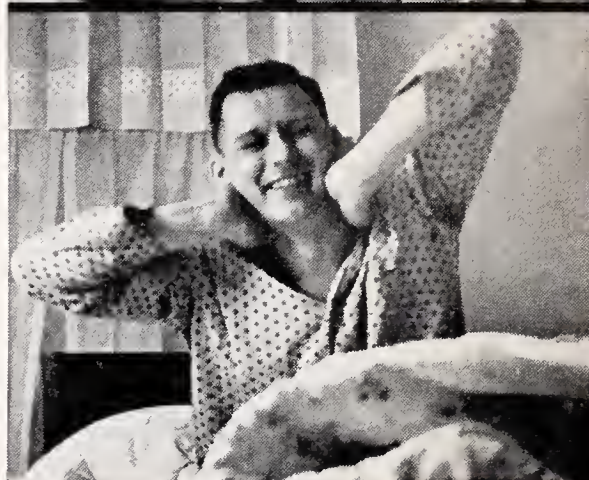
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